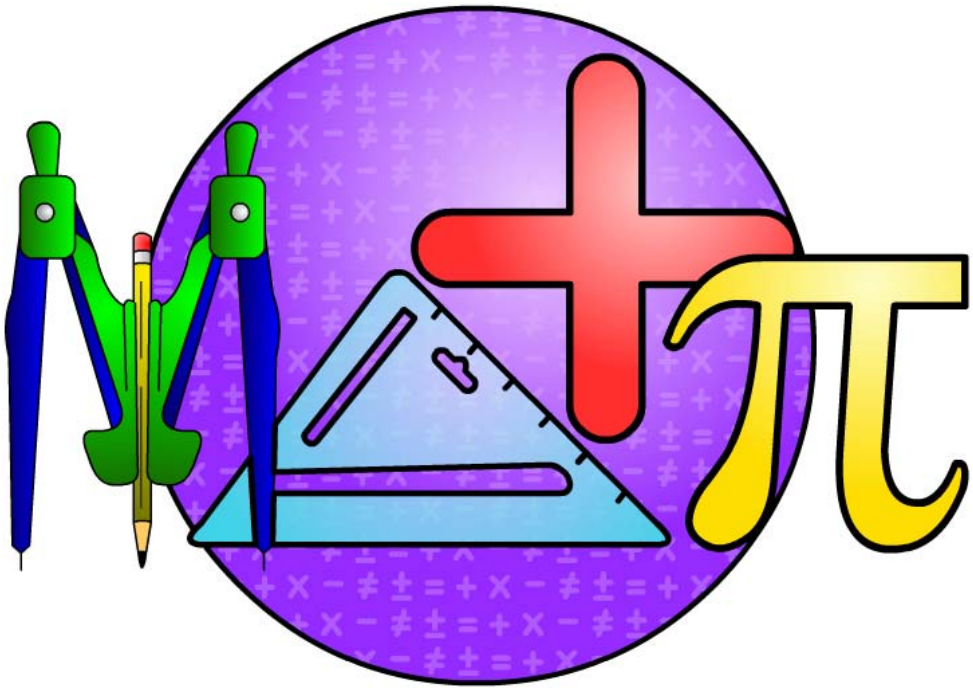
Let's get ready

for

6th grade



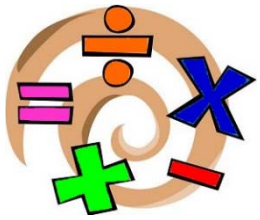
CHESTNUT TAG
MIDDLE SCHOOL
2018 – 2019

NAME: _____

PERIOD: _____

TEACHER: _____

Greetings!



We are so excited you will be joining our learning community at Chestnut TAG Middle School next year! The purpose of this summer booklet is to be an optional learning tool for you if you are able to find the time and space this summer to practice your math skills. We understand that for a lot of families, there will not be time for school work during the summer, so please do not feel pressure to complete any specific number of pages.

We hope you will enjoy working through the math problems, activities, and puzzles that you do choose to complete. Remember to take your time, do your best work, and most importantly, have fun! Our expectation is that you will bring your booklet with you on the first day of school and keep it in the classroom. We will use it as a learning tool during the year.

We promise to challenge you next year because *the secret to learning math is that you have to struggle*. We also promise to celebrate making, and learning from, mistakes together because this is how we develop patience, persistence, and the capacity to persevere.

Position Matters

The Place Values

millions		hundred-thousands	ten-thousands	thousands		hundreds	tens	ones
5	,	9	5	3	,	5	0	0

← To aid in reading, a comma is placed to separate groups of three place values, called periods. When reading, the name of the period is said after the amount in it.

Five million, nine hundred fifty-three thousand, five hundred

Write in the missing word below for each problem.

1. 6,014,014 = six million, fourteen thousand, __________

2. 359,205 = three hundred fifty-nine thousand, two __________ five

3. 9,245,050 = nine million, two hundred forty-five __________, fifty

4. 1,001,100 = one __________, one thousand, one hundred

5. 47,803 = forty-seven __________, eight hundred three

6. 2,604,019 = two million, six __________ four thousand, nineteen

Approximately 540 peanuts are used to make a 12 ounce jar of peanut butter. To make 11,025 jars, 5,953,500 peanuts are needed.

1

Write each problem in number form in the crossnumber puzzle below.

1 twenty-seven thousand, fourteen

2 four million, seven hundred thousand, three

3 five hundred four thousand, thirty

4 ten thousand, three

5 seven hundred thirty thousand, seven hundred thirty

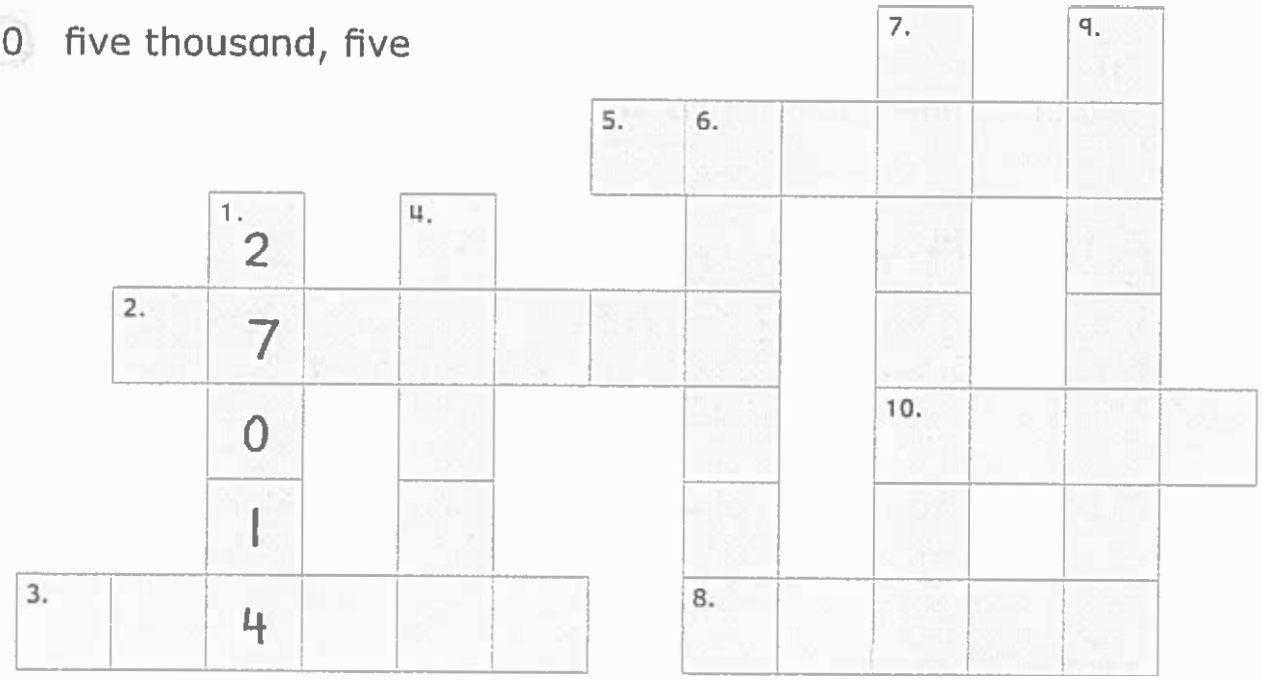
6 three hundred thirty-three thousand, three hundred three

7 one million, seven hundred forty-two thousand, five hundred sixty-one

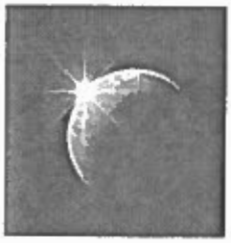
8 thirty-two thousand, one hundred four

9 six million, twenty thousand, four

10 five thousand, five



Earth travels around the sun at the speed of sixty-seven thousand miles per hour (67,000 mph).



2

Write the answers in the ten spaces on the ropes in increasing order (ascending).

Write each problem in number form on the climbing wall below.

1 5,000 + 10 + 3

2 six thousand, six

3 1,000,000 + 5,000

4 seventeen thousand, one hundred

5 5,200

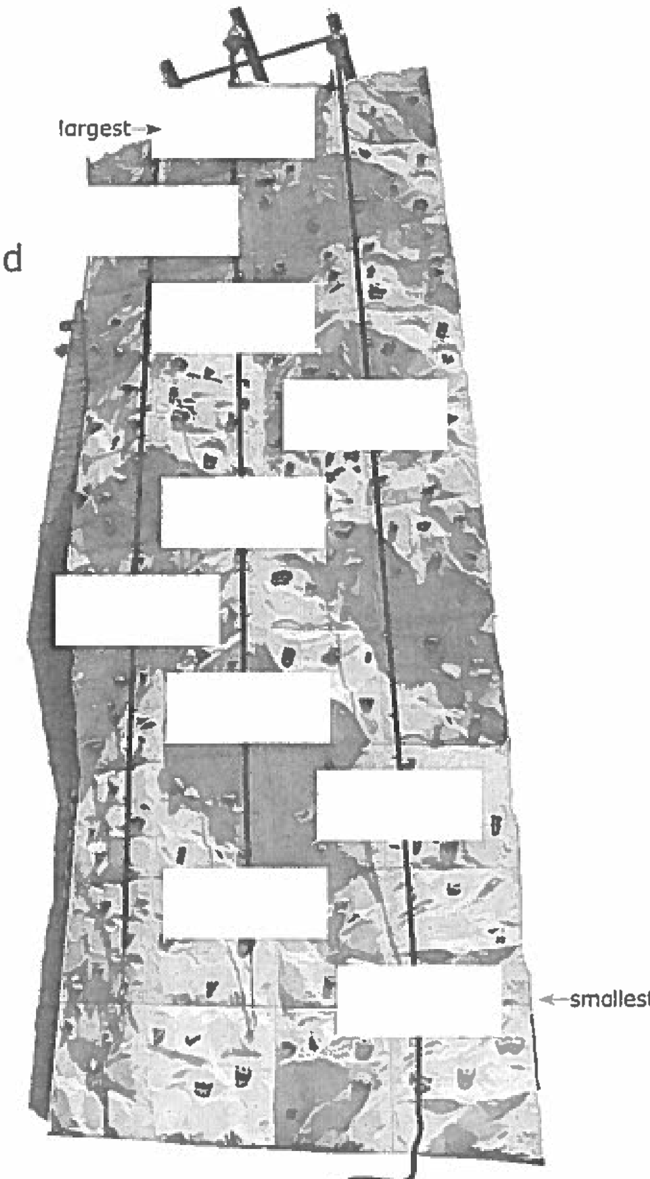
6 100,000 + 50 + 9

7 fifty thousand, twenty

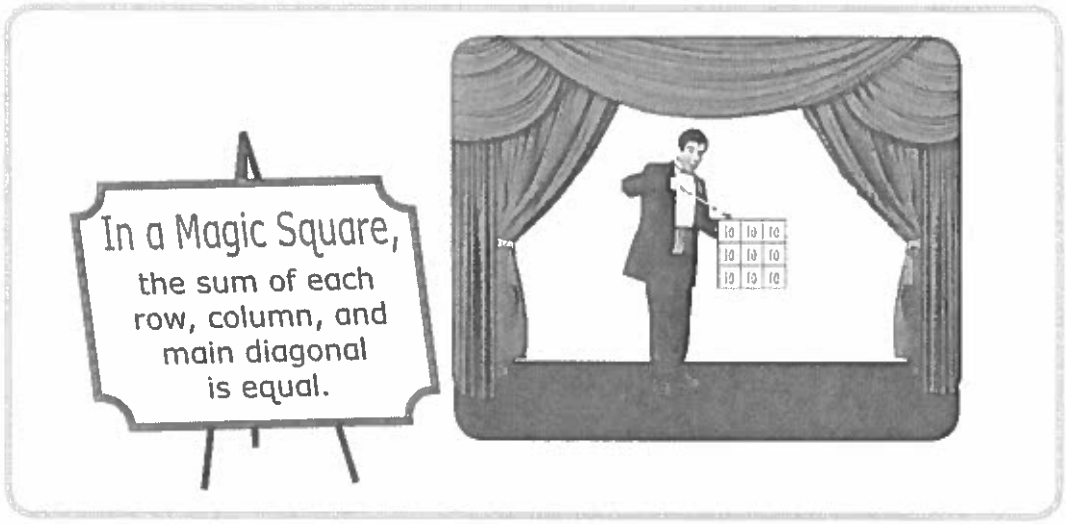
8 8,000 + 80 + 8

9 12,047

10 nine hundred thousand, one



3



Complete the tables below.

1 Place the numbers 0, 2, 4, 6, ~~8~~, 10, ~~12~~, 14, and 16 in the nine squares to make a magic square.

			= 24
	8	12	= 24
			= 24
= 24	= 24	= 24	= 24

2 Place the numbers 1, 4, 7, 10, ~~13~~, 16, 19, ~~22~~, and 25 in the nine squares to make a magic square.

			= 39
	13		= 39
22			= 39
= 39	= 39	= 39	= 39

4

Numbers have certain ways you can expect them to behave. These ways are called properties.

Let a, b, and c represent numbers.

The **Commutative Property of Addition and Multiplication** states that in addition and multiplication, order does not matter.

$a + b = b + a$ $\qquad$ $a \times b = b \times a$

$3 + 4 = 4 + 3 = 7$ $\qquad$ $3 \times 4 = 4 \times 3 = 12$

The **Associative Property of Addition and Multiplication** states that in addition and multiplication if you have three numbers, you may figure the first two or last two and then the other.

$a + (b + c) = (a + b) + c$ $\qquad$ $a \times (b \times c) = (a \times b) \times c$

$3 + (4 + 5) = (3 + 4) + 5 = 12$ $\qquad$ $3 \times (4 \times 5) = (3 \times 4) \times 5 = 60$

The **Distributive Property of Multiplication** states you may multiply by the sum of two numbers or multiply each number separately, and then add.

$a \times (b + c) = a \times b + a \times c$

$3 \times (4 + 5) = 3 \times 4 + 3 \times 5 = 27$

The **Zero Property for Multiplication** states that any number times zero is always zero.

$a \times 0 = 0$

The **Identity Property for Addition** states that when zero is added to any number, the value does not change.

$a + 0 = a$

The **Identity Property for Multiplication** states that when multiplying any number by one, the value does not change.

$1 \times a = a$

Which property is shown?

1. $17 \times 0 = 0$ _____
2. $895 \times 25 = 25 \times 895$ _____
3. $12 + (8 + 9) = (12 + 8) + 9$ _____
4. $10 \times (3 + 9) = 10 \times 3 + 10 \times 9$ _____
5. $1 \times 3{,}604 = 3{,}604$ _____
6. $5 \times (4 \times 7) = (5 \times 4) \times 7$ _____
7. $(842 - 115) \times 0 = 0$ _____
8. $5{,}167 + 0 = 5{,}167$ _____
9. $2 \times (5 + 9) = 2 \times (9 + 5)$ _____
10. $3 \times (8 + 9) = 24 + 27$ _____

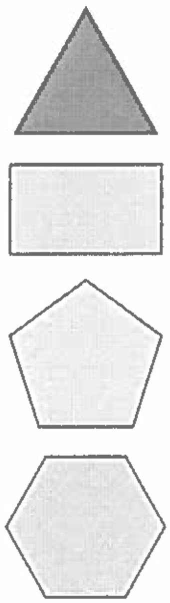
Name the property that makes each of the steps true.

11. Given: $81 + (19 + 30)$
    Step 1: $81 + (30 + 19)$ _____
    Step 2: $(81 + 30) + 19$ _____
    Step 3: $3 \times (27 + 10) + 19$ _____

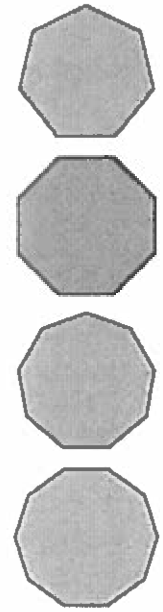
12. Given: $11 \times 23 \times 0$
    Step 1: $23 \times 11 \times 0$ _____
    Step 2: 0 _____

6

A **polygon** is a closed figure made with line segments. In a **regular polygon**, all sides are of equal length and all angles are equal too.



Number of Sides	Name
3	triangle
4	quadrilateral
5	pentagon
6	hexagon
7	heptagon
8	octagon
9	nonagon
10	decagon



Find and circle the eight polygon names listed above. The names can be found in straight lines horizontally, vertically, or diagonally, written forwards or backwards.

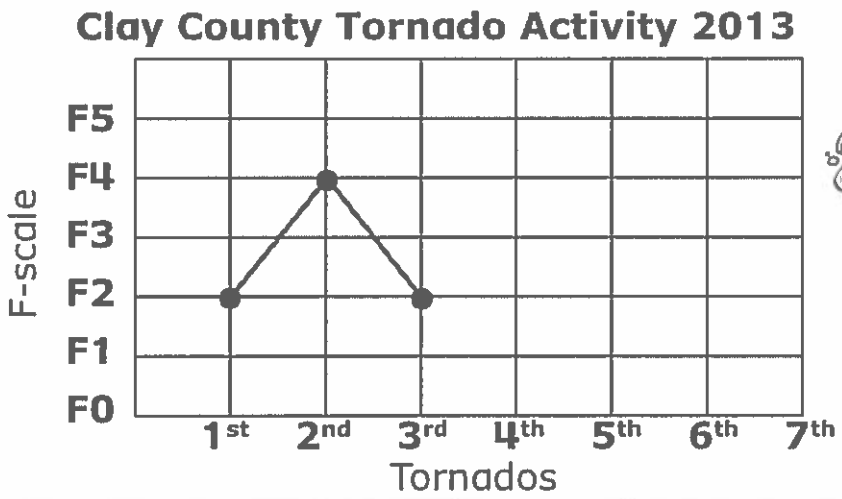
E	L	G	N	A	I	R	T	R	O	H	A	S
O	N	T	A	G	R	O	A	B	S	E	T	U
A	N	T	H	E	X	A	G	O	N	P	E	D
R	O	D	P	N	O	G	A	T	N	T	P	O
R	G	N	O	G	A	T	C	O	R	A	C	T
T	A	P	O	S	R	A	G	O	N	G	O	A
O	N	P	E	N	T	A	G	O	N	O	G	O
T	O	T	R	I	C	O	N	A	W	N	T	A
N	N	R	T	E	O	N	T	S	R	D	E	C
Q	U	A	D	R	I	L	A	T	E	R	A	L

Fujita Scale

The **Fujita scale** (F-scale) is a scale for rating tornado intensity. The scale goes from F0 to F5.

Category	Speed	Damage
F0	40-72 mph	slight
F1	73-112 mph	moderate
F2	113-157 mph	significant
F3	158-206 mph	severe
F4	207-260 mph	devastating
F5	261-318 mph	incredible

1 The county of Clay had seven tornados in one year. Their intensity was 120 mph, 218 mph, 156 mph, 191 mph, 101 mph, 78 mph, and 61 mph. Complete the following line graph.



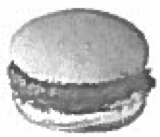
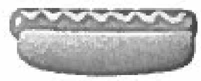
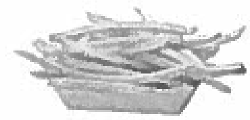
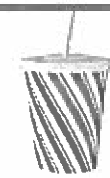
To find the **average** speed of a category F0 tornado, add up the limits of the speed, and divide by two.

The average speed of a F0 = (40 + 72) ÷ 2 = 56 mph.

2 The average speed of a category F2 is _____ mph.

3 The average speed of a category F3 is _____ mph.

Order to Go!

				
Burger	**Cheese Burger**	**Hotdog**	**Fries**	**Drink**
$1.69	$1.98	$1.75	$1.49	$1.25

Find the total of each order before tax is added.

1. cheeseburger, hotdog, and drink = $4.98

$1.98
1.75
+ 1.25
$4.98

2. two burgers, and two drinks = ______

3. hotdog, burger, and two drinks = ______

4. three burgers, three fries, and three drinks = ______

5. one of each = ______

Use the prices to find what items were purchased.

6. The bill for three items was $4.25.

______ ______ ______

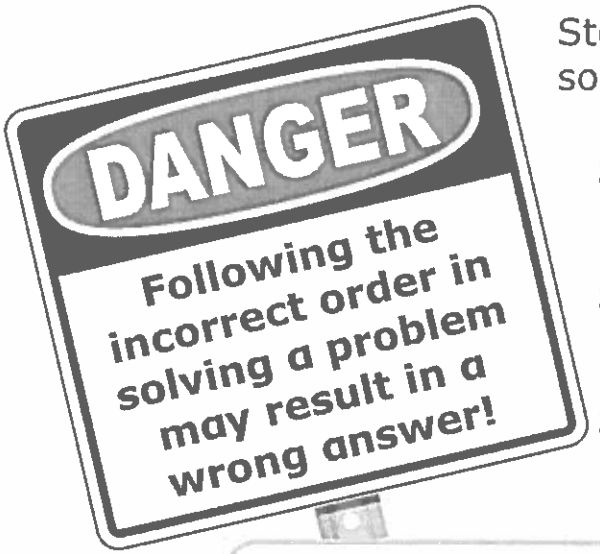
7. The bill for three items was $5.42.

______ ______ ______

8. The bill for four items was $5.98.

______ ______ ______ ______

9



Steps for **Order of Operations** in solving problems:

Step 1: Do the work inside parentheses.

Step 2: Do multiplication and division from left to right.

Step 3: Do addition and subtraction from left to right.

	Example 1	Example 2	
	$5 \times 9 - 8 \div 2 =$	$2 \times 9 - (19 - 1) =$	
Step 1:	No parentheses, go to Step 2.	$2 \times 9 - (\underline{19 - 1}) =$	Step 1
Step 2:	$\underline{5 \times 9} - \underline{8 \div 2} =$	$\underline{2 \times 9} - \quad 18 \quad =$	Step 2
Step 3:	$45 - 4 = 41$	$18 - 18 = 0$	Step 3

Solve each problem; then cross out the correct answers on the right to find the two false answers.

1. $100 - (19 + 34) =$ _____
2. $640 \div 8 - 8 \times 5 =$ _____
3. $219 - (60 - 14) =$ _____
4. $75 \div 5 + (100 - 10) =$ _____
5. $(34 - 24) \div 5 \times 2 =$ _____
6. $100 \div 5 + 5 \times 2 + 3 =$ _____

4
47
52
40
105
154
33
173

Place parentheses to make each equation true.

7. $20 - 10 - 10 - 5 = 5$
8. $24 \div 3 + 2 \div 2 \times 2 = 12$

10

Order of Operations Challenge

When figuring the answer, the following steps must be done in the correct order.

Step 1: Do the work inside parentheses.

Step 2: Do multiplication and division from left to right.

Step 3: Do addition and subtraction from left to right.

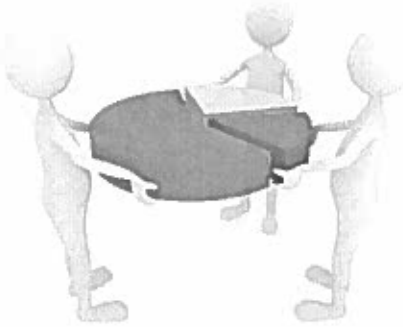
Place parentheses to make each equation true. There may be more than one set of parentheses.

1. $8 \div 2 + 6 = 1$ $\quad$ $8 \div (2 + 6) = 1$
2. $4 + 8 \div 8 - 4 = 3$ ____________
3. $20 - 12 \div 2 \times 3 = 18$ ____________
4. $24 \div 4 + 2 \times 2 = 3$ ____________
5. $12 - 6 - 4 - 2 = 8$ ____________
6. $4 + 8 - 4 + 2 \times 2 = 16$ ____________
7. $24 - 12 \div 2 + 8 \div 2 = 2$ ____________
8. $4 \times 2 + 2 \times 2 \div 2 = 16$ ____________
9. $100 - 48 + 24 - 12 + 6 = 10$ ____________

11

Rules for Even Divisibility

÷ by	evenly (no remainder) if ...
2	the ones place value is even.
3	the sum of the digits is divisible by 3.
4	the last two digits are divisible by 4.
5	the ones place value is 0 or 5.
6	the number is evenly divisible by 2 and 3.
8	the last three digits are divisible by 8.
9	the sum of the digits is divisible by 9.
10	the ones place value is 0.



1 Underline the numbers evenly divisible by **2**.

1,246 97 90,495 8,888

2 Underline the numbers evenly divisible by **3**.

13 111 216 30,111

3 Underline the numbers evenly divisible by **4**.

924 1,000 88 132

4 Underline the numbers evenly divisible by **5**.

75 810 10,502 904

5 Underline the numbers evenly divisible by **6**.

33 1,000 120 96

6 Underline the numbers evenly divisible by **8**.

100 800 5,040 98

7 Underline the numbers evenly divisible by **9**.

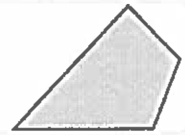
99 209 711 10,800

8 Underline the numbers evenly divisible by **10**.

20,170 108 90 3,100

12

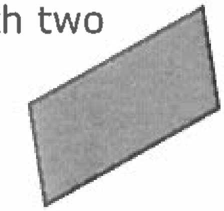
A four sided polygon is called a **quadrilateral**.



Special Quadrilaterals

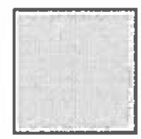
A quadrilateral with one pair of parallel sides is called a trapezoid.

A quadrilateral with two pairs of parallel sides is called a parallelogram.



A parallelogram with four right angles is called a rectangle.

A rectangle with four equal sides is called a square.



Answer the follow questions with "true" or "false."

1. All rectangles are parallelograms. ________
2. All squares are parallelograms. ________
3. All quadrilateral are parallelograms. ________
4. All squares are rectangles. ________

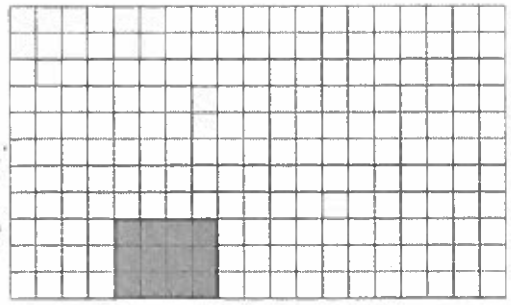
Find and circle the five polygon terms defined. The names can be found in straight lines horizontally, vertically, or diagonally, written forwards or backwards.

P	O	R	E	F	O	L	S	Q	P	E	C	T	R	S
R	L	A	R	E	T	A	L	I	R	D	A	U	Q	E
R	E	C	T	R	A	P	E	Z	O	I	D	U	P	A
R	T	P	A	O	S	Q	U	A	R	W	A	T	R	E
P	A	R	A	L	L	E	L	O	G	R	A	M	S	Q
E	R	E	L	G	N	A	T	C	E	R	R	E	C	T

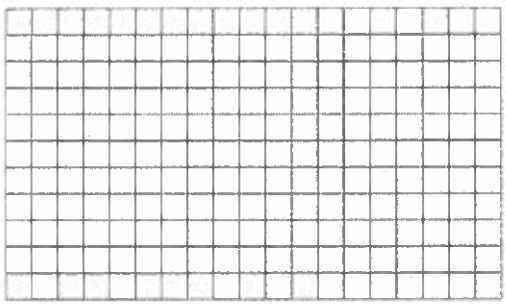
13

Draw a Rectangle!

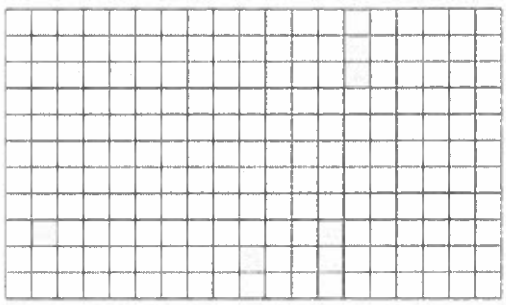
1. Area = 12 square units
   Perimeter = 14 units



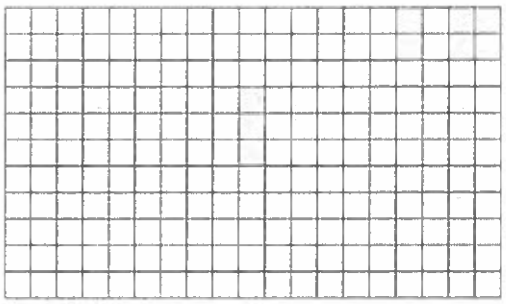
2. Area = 24 square units
   Perimeter = 22 units



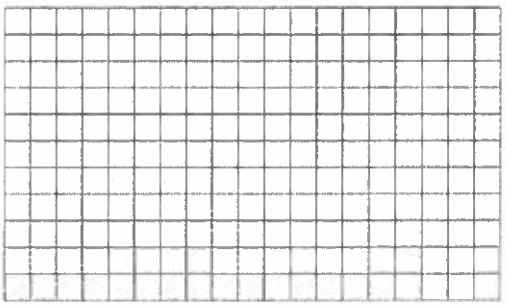
3. Area = 16 square units
   Perimeter = 20 units



4. Area = 36 square units
   Perimeter = 40 units



5. Area = 64 square units
   Perimeter = 40 units



14

Vocabulary Message

Write the vocabulary word from the choice box that makes each sentence true. The red underlined letters will form the message below.

- angle
- area
- lowest
- numerator
- perimeter
- polygon
- prime
- product
- quadrilateral
- quotient
- square
- sum
- triangle
- vertex

1. A 3-sided polygon is called a __ __ __ __ __ __ __ __.

2. A whole number that is only evenly divisible by itself and 1 is called __ __ __ __ __.

3. A fraction in simplest form is said to be in __ __ __ __ __ __ terms.

4. For a rectangle, length times width equals __ __ __ __.

5. The __ __ __ __ __ __ __ __ __ is the top part of a fraction.

6. The answer to an addition problem is the __ __ __.

7. Two sides of an angle meet at the __ __ __ __ __ __.

8. A __ __ __ __ __ __ __ __ __ __ __ __ __ is a 4-sided polygon.

9. The result in a multiplication problem is called the __ __ __ __ __ __ __.

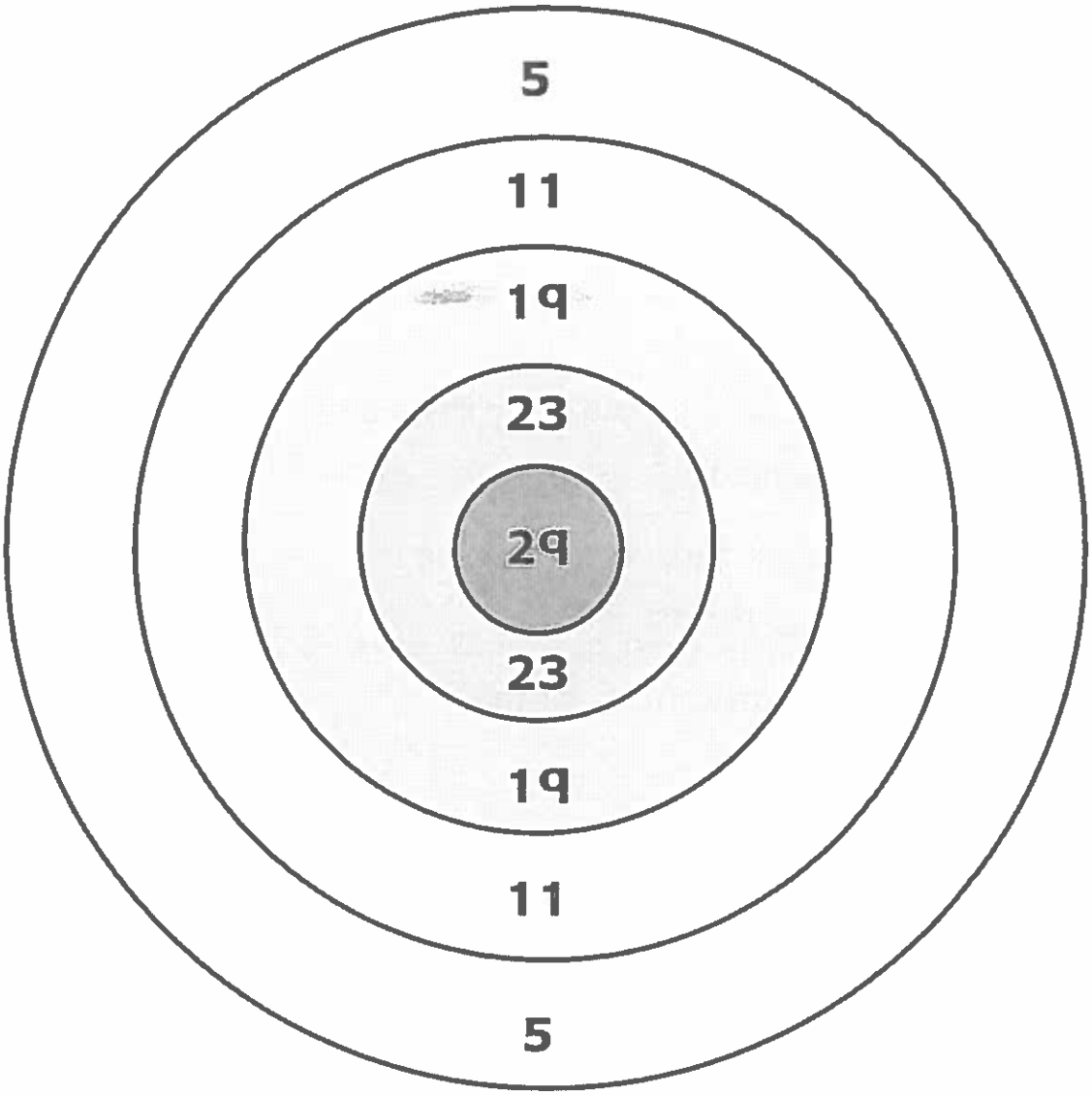
10. The distance around a polygon is called the __ __ __ __ __ __ __ __ __.

11. A closed figure made up of line segments is called a __ __ __ __ __ __ __.

12. The answer to a division problem is called the __ __ __ __ __ __ __ __.

MESSAGE: __ __ __ __ __   __ __ __ __ __ __ __ __

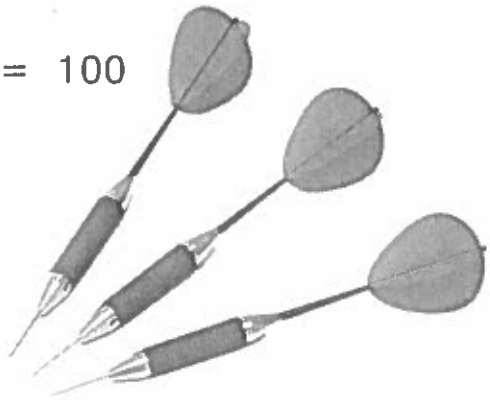
15



Ali threw all of her four darts at the board. The total of the areas her darts landed on was 100 points.

What four areas did she land on?

____ + ____ + ____ + ____ = 100



16

Name_____

Question 26

The ratio of the number of Aaliyah's pens to the number of Mariah's pens was 2 : 3 at first. After Dad gave Aaliyah another 16 pens, the ratio became 2 : 1.

(a) How many pens did Mariah have?

(b) If Mariah gave away 6 pens, what would be the new ratio of the number of Aaliyah's pens (after Dad gave her 16 pens) to the number of Mariah's pens?

Answer: (a) _____

(b) _____

Name _____

Question 28

The ratio of the number of Alex's beads to the number of Ellie's beads was 3 : 4. After Alex bought another 72 beads, the ratio became 3 : 1.

(a) How many beads did Ellie have?

(b) If Alex gave away 80 beads, what would be the new ratio of the number of Ellie's beads to the number of Alex's beads?

Answer: (a) _____

(b) _____

Lunch Time

Washington Elementary School has grades first through fifth. Unfortunately, it is such a small building that not all grades can eat in the cafeteria at once. The principal decided to work on a plan to schedule different classes at different times. He figured that he would have them come to the cafeteria starting in 15 minute intervals from 11:30 a.m. to 12:30 p.m.

After he finished the schedule, he noticed the second grade was fed before the fifth grade but after the fourth grade. The first grade was fed fifteen minutes after the fourth grade. The third grade was fed after the fifth grade. Use the following chart to organize the schedule.

Grade	11:30	11:45	12:00	12:15	12:30
1st					
2nd					
3rd					
4th					
5th					

At what time did each class go to the cafeteria?

Algebra Questions and Riddle

Find each answer, then use the letters to solve the riddle below.

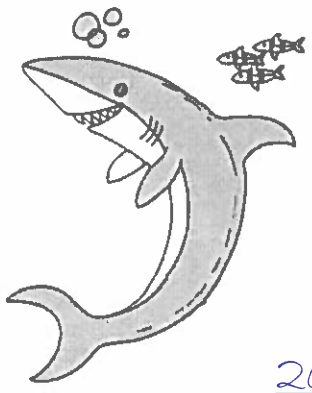
Jim has $50

1	Jan has $14 more than Jim.	Jan = $64 w
2	Lea has twice as much as Jim.	Lea = ____ o
3	Kali has 4 times as much as Jim, minus $2.	Kali = ____ r
4	Ava has $19 less than Jim.	Ava = ____ e
5	Kale has $31 more than $1 less than Jim.	Kale = ____ t
6	Ann has half as much as Jim.	Ann = ____ h
7	Bill has $129 more than half of the amount Jim has.	Bill = ____ n
8	Lee has twice as much as Jim, increased by $117.	Lee = ____ s
9	Tim has as much as Jim and Kali combined.	Tim = ____ a
10	Bob has 8 times what Jim has divided by 20.	Bob = ____ d
11	Cara has the same amount as the sum of Jim, Ava, and Bill.	Cara = ____ l
12	Dee has the same amount as the difference between Bill's and Ann's amount.	Dee = ____ u

What is a shark's favorite game?

____	w	____	____	____	____	____	____	____	____
217	64	248	235	235	100	64	80	25	31

____	____	____	____	____	____
235	31	248	20	31	198



20

Ratio Statements

Name: _____ Score: _____

Read the statements. Express the ratios in their simplest forms

I have 250 coins in my piggy bank. 20% of them are 1 dollar coins, 50% are dimes and the rest are quarters.

The ratio dollars to dimes is _____

The ratio dimes to quarters is _____

The ratio dollars to quarters is _____

The ratio dollars to the total coins is _____

The ratio quarters to the total coins is _____

How much money do I have in my piggy bank _____

There are (x + 20) flowers in a field. (2x - 60) of them are yellow, 25 are red and 15 are blue.

The ratio blue to red flowers is _____

The ratio blue to yellow flowers is _____

The ratio red to yellow flowers is _____

The ratio blue flowers to the total flowers is _____

The ratio yellow flowers to the total flowers is _____

The ratio red to the total flowers is

Expressing Ratios of Practical Units

Name: _____ Score: _____

Express the following ratios in their simplest forms.

50 tigers out of 300 cats	130 birds to 65 birds
7.5 Pounds to 25 Pounds	39 zebras out of 52 animals
$2.50 out of $62.50	105 books out of 180 books
155 cups out of 186 cups	216 apples out of 468 fruits
$3.50 out of $70	54 points out of 180 points
84 pens out of 144 pens	$25 out of $87.50
120 boys to 3,600 pupils	51 eggs to 60 eggs

Creating Equivalent Ratios?

Name: _____ Score: _____

Fill in the blanks to make the ratios equivalent.

14 : 49 = 28 : ☐

200 : 600 = ☐ : 150

12 : ☐ = 30 : 60

25 : 10 = ☐ : 30

15 : 40 = 45 : ☐

13 : ☐ = 91 : 350

17 : ☐ = 68 : 248

125 : ☐ = 1 : 3

20 : 25 = 5 : ☐

150 : 120 = ☐ : 240

19 : 18 = 95 : ☐

244 : 360 = ☐ : 180

36 : 24 = 30 : ☐

30 : ☐ = 15 : 50

15 : 100 = 60 : ☐

120 : 600 = ☐ : 25

40 : 50 = 20 : ☐

100 : ☐ = 150 : 225

12 : 50 = 48 : ☐

120 : 360 = ☐ : 150

Are the Ratios Equivalent Ratios?

Name: _____ Score: _____

Are the following ratios equivalent? Answer with 'yes' or 'no'.

15 : 75 and 80 : 400	16 : 80 and 30 : 180
2.5 : 10 and 30 : 120	225 : 153 and 27 : 16
51 : 180 and 68 : 220	1.4 : 12.6 and 50 : 450
0.23 : 23 and 0.15 : 1.5	325 : 390 and 50 : 60
1.8 : 54 and 8 : 240	22 : 33 and 124 : 182
0.2 : 3 and 20 : 230	360 : 304 and 45 : 38
1.2 : 10.8 and 1.1 : 9.9	21 : 25 and 105 : 150

Unit Rate Word Problems

Name: _____ Score: _____

Solve the following unit rate problems and show your workings.

1. A car manufacturer can produce 200 cars per day. How many weeks will it take to produce 5,600 cars?

2. Amra can run 20 kilometers in 3 hours at a steady rate. How long will it take her to run just 5 kilometers?

3. Petra always keeps the 6 bedrooms in her house clean. It takes her 15 minutes to clean a single rooms. How many hours will it take her to clean all 6 bedrooms?

4. I can type 400 words per hour. How many minutes will it take me to write a report with 2,000 words?

5. When I work for 4 hours I take 2 breaks of 15 minutes each. If I worked 12 hours yesterday, how many minutes in breaks did I take?

6. It takes me 12 minutes to swim 4 laps. How many hours will it take me to swim 50 laps?

Unit Price/Better Buys

Name: _____ Score: _____

Which is the better buy? What's its unit price?

3 apple pies for $11 or 7 apple pies for $24.50	5 cans of coke for $3 or 6 cans of coke for $3.80
2 trains sets for $25 or 6 train sets for $90	5 grams of gold for $200 or 12 grams of gold for $500
100 erasers for $42 or 80 erasers for $32	10 pencil cases for $16 or 16 pencil cases for $24
15 staplers for $30 or 23 staplers for $57.50	2 entrance tickets for $21 or 9 entrance tickets for $90
20 bananas for $5 or 90 bananas for $27	15 gallons of gas for $51 or 7 gallons of gas for $24.50
2 sweaters for $60 or 10 sweaters for $320	28 stickers for $15 or 40 stickers for $20

For each question, four options are given. One of them is the correct answer.
Make your choice (1,2,3 or 4).

1. Find the value of $\frac{2}{3} - \frac{5}{12}$.

   (1) $\frac{1}{4}$

   (2) $\frac{1}{3}$

   (3) $\frac{7}{15}$

   (4) $1\frac{1}{12}$ ( )

2. Find the product of 3 and $\frac{4}{9}$

   (1) $\frac{4}{27}$

   (2) $\frac{7}{9}$

   (3) $1\frac{1}{3}$

   (4) $3\frac{4}{9}$ ( )

3. Kaitlyn spent $\frac{2}{5}$ of her money on a pencil and $\frac{3}{10}$ of it on a bag.
   What fraction of her money was spent?

   (1) $\frac{1}{10}$

   (2) $\frac{1}{3}$

   (3) $\frac{1}{2}$

   (4) $\frac{7}{10}$ ( )

4. Find the value of $\frac{3}{5} + \frac{1}{4}$.

   (1) $\frac{3}{20}$

   (2) $\frac{4}{20}$

   (3) $\frac{4}{9}$

(4) $\frac{17}{20}$ ( )

5. How many ninths are there in $2\frac{2}{3}$?

(1) 6
(2) 8
(3) 24
(4) 72 ( )

6. Mrs Koh gave $\frac{3}{8}$ of her pineapple tarts to her sister and $\frac{1}{2}$ of the remaining to her mother, What fraction of the pineapple tarts had she left?

(1) $\frac{3}{16}$
(2) $\frac{5}{16}$
(3) $\frac{9}{16}$
(4) $\frac{11}{16}$ ( )

7. $\frac{1}{4}$ of the beads in a box are blue. $\frac{1}{3}$ of the beads are small. If there are 700 small blue beads, how many beads are there altogether in the box?

(1) 1 200
(2) 2 450
(3) 4 900
(4) 8 400 ( )

8. When a number is divided by 22, the quotient is 88. What is the quotient when the same number is divided by 8?

(1) 11
(2) 32
(3) 242
(4) 4 ( )

Write your answers in the spaces provided. For questions which require units, give your answers in the units stated.

9. Express $\frac{29}{22}$ as a mixed number.

Ans: _____

---

10. Find the value of $\frac{1}{2} + \frac{9}{10}$. Express your answer as a mixed number in its simplest form.

Ans: _____

---

11. Sheena bought 3 packets of milk. Each packet contained $\frac{13}{6}$ litres of milk. How many litres of milk did she buy altogether? Express your answer as a mixed number in its simplest form.

Ans: _____ litres

---

12. $0.28 = \frac{7}{?}$

Ans: _____

---

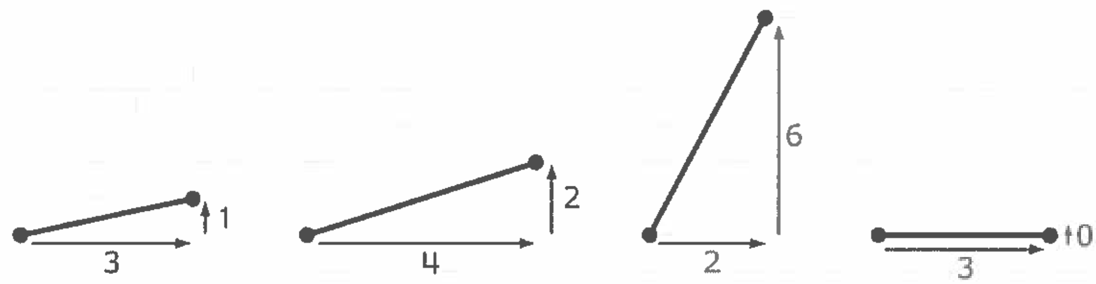
13. There are 2065 pupils in a school. $\frac{4}{7}$ of the pupils are girls. There are 5 times as many girls as the teachers in the school. How many teachers are there?

Ans: _____

Slope is a number that tells how slanted a line is. The larger the number, the more the line is slanted. A horizontal line has slope 0.

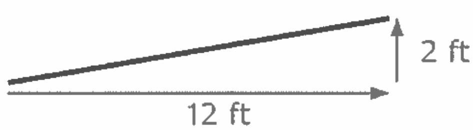
Slope is written as a ratio comparing the rise of the line (units on y-axis) to the run of the line (units on x-axis). Select two points on the line and starting with the lowest point, figure the rise and run. Slope is written as a fraction in simplest form and never written as a mixed fraction.

$$\text{Slope} = \frac{\text{rise} \uparrow}{\text{run} \rightarrow}$$

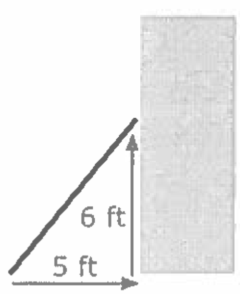


$\frac{1}{3}$ $\frac{2}{4} = \frac{1}{2}$ $\frac{6}{2} = 3$ $\frac{0}{3} = 0$

1 What is the slope of the ramp?



2 What is the slope of the ladder?



The Americans with Disabilities Act requires a $\frac{1}{12}$ slope for wheelchair ramps for public use.

30

Mystery Number

Use the clues below to find which number in the array is the mystery number.

1. is not prime
2. is even
3. is a factor of 180
4. is a multiple of 15
5. is evenly divisible by 4

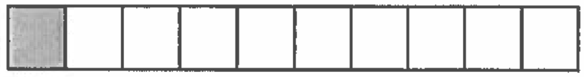
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

ANSWER: _____

___ hundreds ___ tens ___ ones . ___ tenths

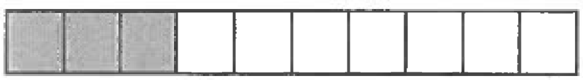
To the right of the decimal, we express parts of one.

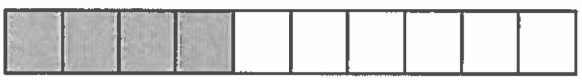
When one unit is divided into ten parts, each part is $\frac{1}{10}$ of the unit, written as .1

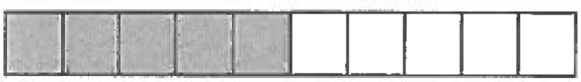


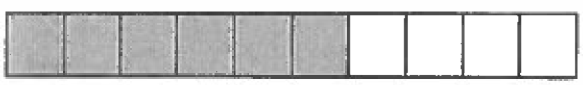
$.2 = \frac{2}{10} = \frac{1}{5}$

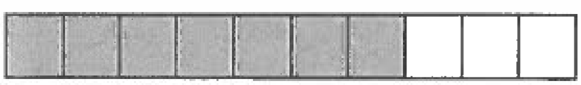
Write the following as decimals and equivalent fractions.

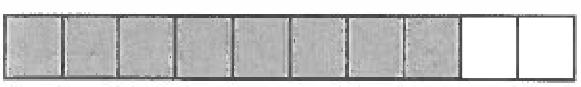
1 

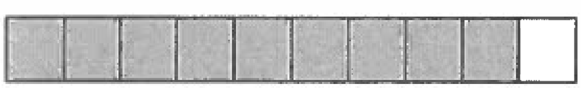
2 

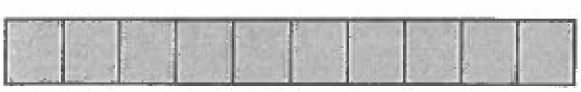
3 

4 

5 

6 

7 

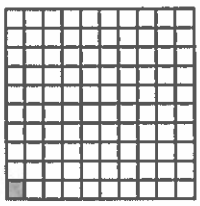
8 

	Decimal	Fraction
1		
2		
3		
4		
5		
6		
7		
8		

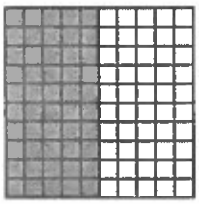
32

hundreds	tens	ones	.	tenths	hundredths

To the right of the decimal, we express parts of one. When one unit is divided into a hundred parts, each part is $\frac{1}{100}$ of the unit, written as .01



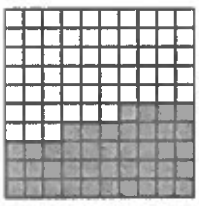
$.50 = \frac{50}{100} = \frac{1}{2}$



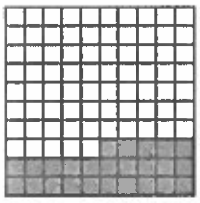
Note: .50 = .5

Write the following as decimals and equivalent fractions.

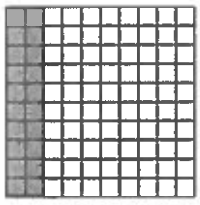
1



2



3



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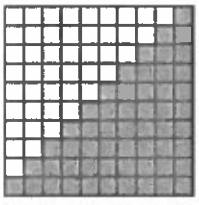

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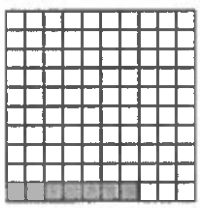

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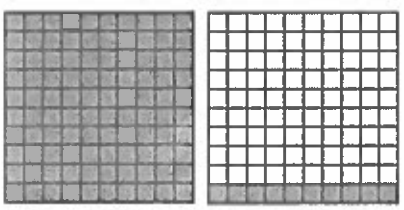
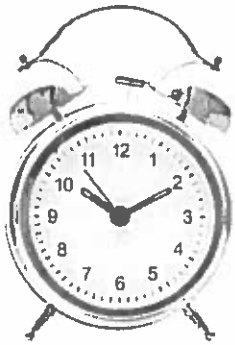


	Decimal	Fraction
1		
2		
3		
4		
5		
6		

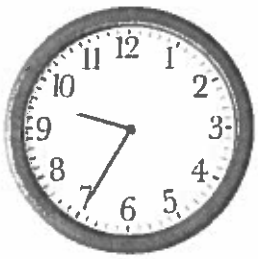


Minutes past the hour

The time is 10:10

Hour

The small hand indicates the hour while the long hand shows minutes past the hour.



9:35

24 hours	=	1 day
1 hour	=	60 minutes
$\frac{1}{2}$ hour	=	30 minutes
$\frac{1}{4}$ hour	=	15 minutes
$\frac{3}{4}$ hour	=	45 minutes

10 minutes later than 1:40 is

$$\begin{array}{r} 1{:}40 \\ +\ 10 \\ \hline 1{:}50 \end{array}$$

$\frac{1}{4}$ hour later than 9:50 is

(Note: 60 minutes = 1 hour)

$$\begin{array}{r} 9{:}50 \\ +\ 15 \\ \hline 10{:}05 \end{array}$$

Determine each time; then use the letters to solve the riddle on the next page.

c 25 minutes after 11:30 is _____.

h $\frac{1}{2}$ hour after 4:20 is _____.

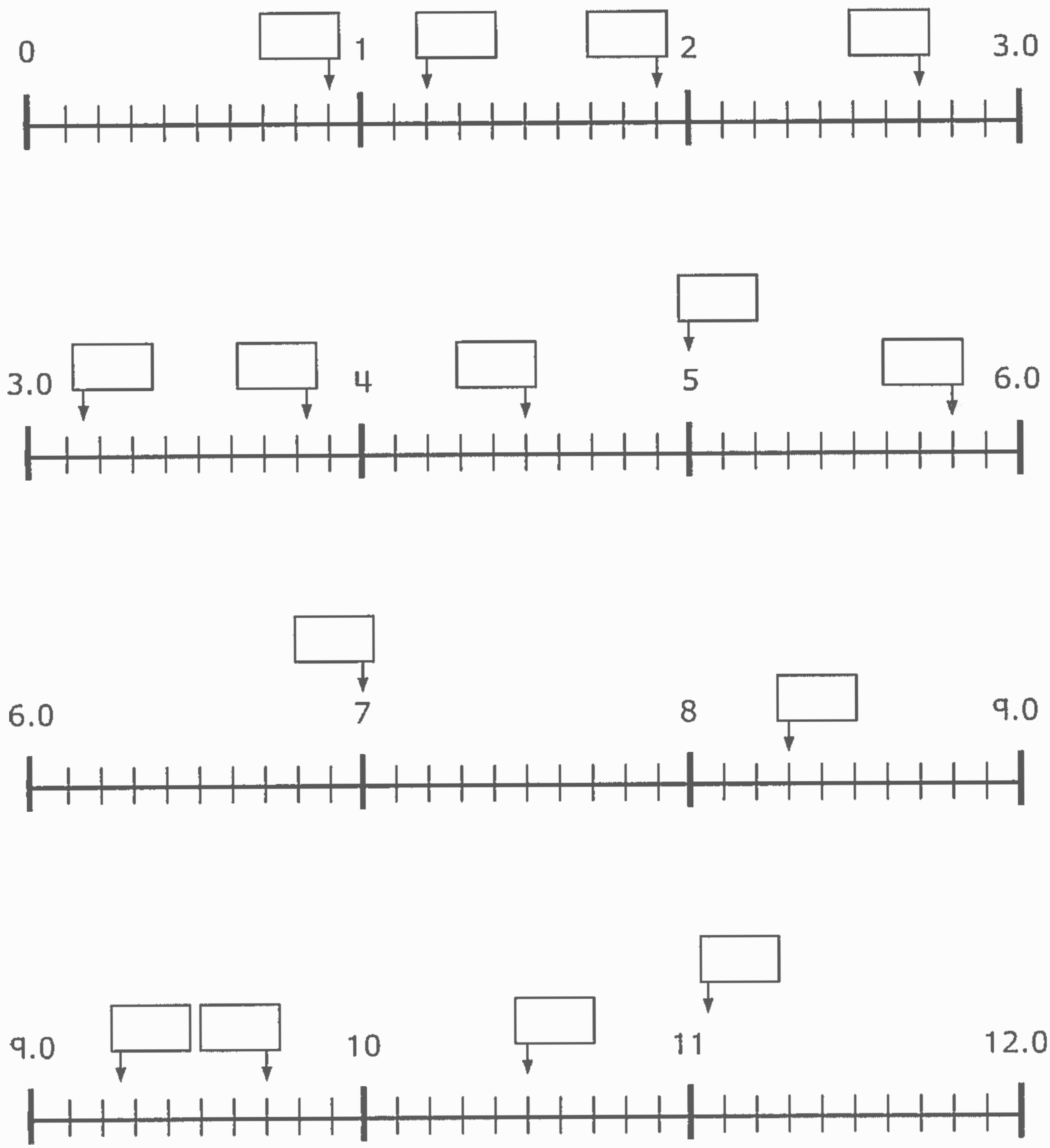
i $\frac{1}{4}$ hour after 1:17 is _____.

e 55 minutes after 3:10 is _____.

34

Place the numbers in the table below in their correct position on the number line.

1.2	5	.9	9.25	10.5
3.15	9.7	8.3	2.7	11.05
4.5	1.9	7	5.8	3.83



35

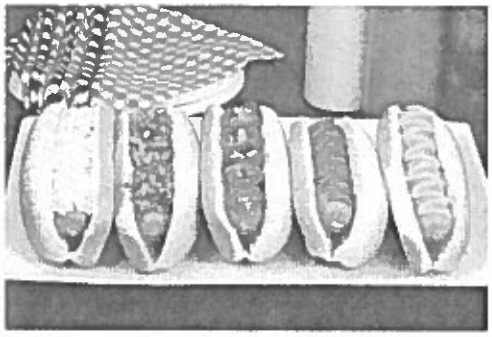
Given 10 minutes, the three top winners of a national hot dog eating contest ate 65, 58, and 40 hot dogs and buns. They were averaging 6.5, 5.8, and 4 hot dogs per minute. How many hot dogs can the three contestants eat in a minute?

6.5 + 5.8 + 4 = ____

Remember to line up the decimal points to add same place values together. Insert zero placeholders where needed.

$$\begin{array}{r} {\scriptstyle 1} \\ 6.5 \\ 5.8 \\ +\ 4.0 \\ \hline \end{array}$$

16.3 hot dogs per minute

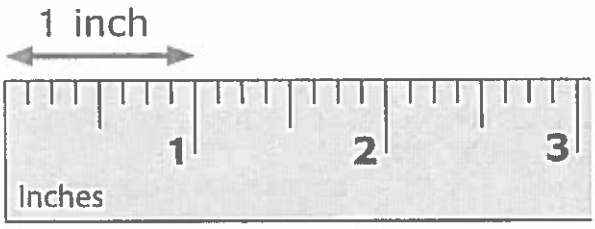


Find each sum; then cross out the correct answers on the right to find the two false answers. 1 = 1. = 1.0 = 1.00

1	8.3 + .61 =	13.11
2	3 + 1.2 + .45 =	7.64
3	4.08 + .2 + .02 =	1.19
4	3.01 + 10 + .1 =	6.1
5	.23 + .4 + .56 =	8.91
6	4.2 + .9 + .8 =	12.41
7	3.9 + 2 + .2 =	5.9
8	5 + 2.08 + 1.1 =	8.18
		4.65
		4.3

In 2011, Nathan's Hot Dog Eating Contest had over 40,000 spectators in attendance.

36



1 foot (ft or ') = 12 inches (in. or ")

2 ft = 2 × 12 = 24 inches or 24"

3 feet 5 inches = 3'5" = 36 + 5 = 41 inches

Write the equivalent quantity for each problem; then cross out the correct answers on the right to find the two false answers.

1 4 feet = _____

2 2'9" = _____

3 10' = _____

4 5'6" = _____

5 6 feet = _____

6 4'11" = _____

33"

66"

53"

72"

84"

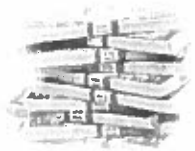
59"

48"

120"

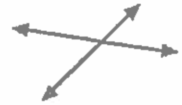
7 There are 5,280 ft in a mile. How many inches are in a mile? _____

A stack of a thousand $1 bills is about 4" high!



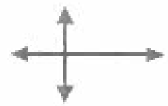
37

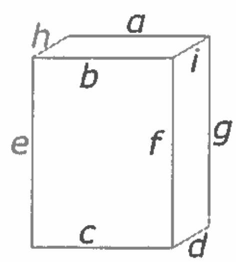
Lines that meet are called intersecting lines.

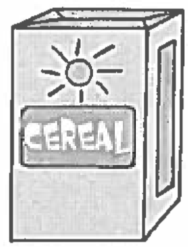


Lines in the same plane that are equal distance from each other are called parallel lines.

Lines that intersect and form a right angle are called perpendicular lines.







Write *true* or *false* for each statement.

1 Line *a* is parallel to line *b*. ____________

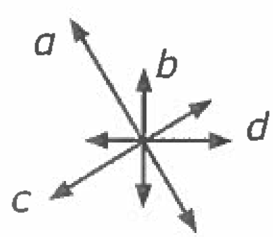
2 Line *e* is parallel to line *g*. ____________

3 Line *h* is parallel to line *a*. ____________

4 Line *c* is perpendicular to line *d*. ____________

5 Line *e* is perpendicular to line *h*. ____________

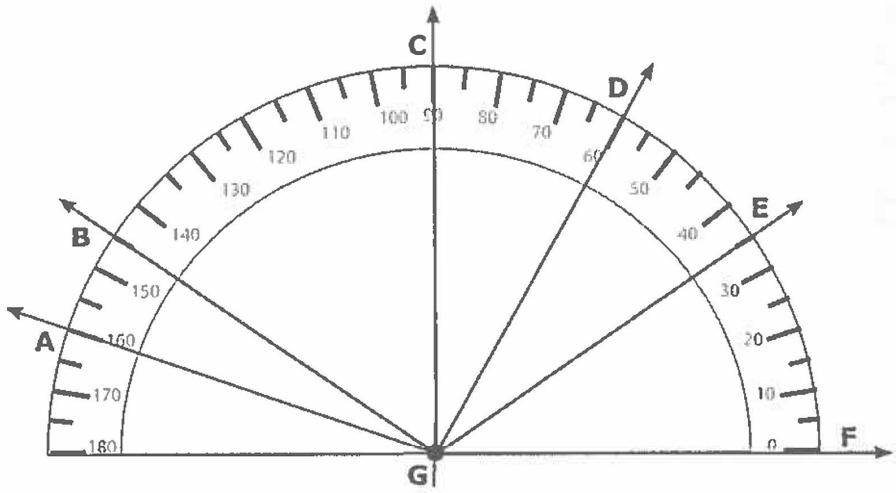
6 Line *b* is perpendicular to line c. ____________



7 What line is perpendicular to line *a*? ____________

8 What line is perpendicular to line *b*? ____________

38



Determine the degree of each angle.

1 ∠**AGF** = 160°

2 ∠**BGF** = _____

3 ∠**CGF** = _____

4 ∠**DGF** = _____

5 ∠**EGF** = _____

6 ∠**CGD** = _____

7 ∠**DGE** = _____

8 ∠**AGC** = _____

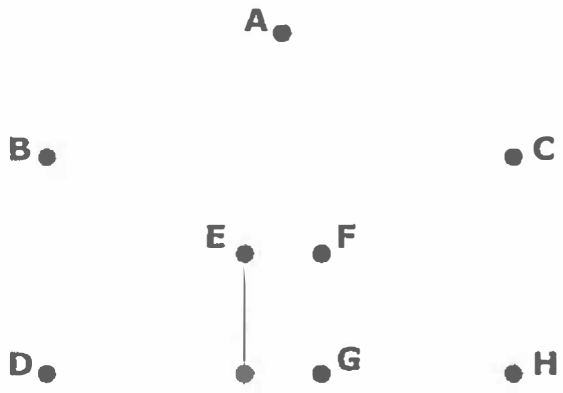
9 Draw the listed angles and see a picture.

∠**BDH**

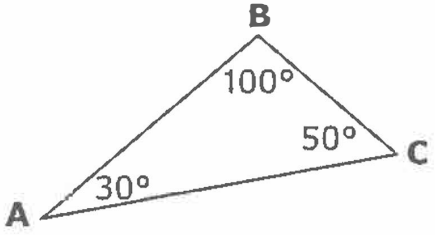
∠**BAC**

∠**HCB**

∠**EFG**



10 Write the measure of each angle.



∠**ABC** = _____

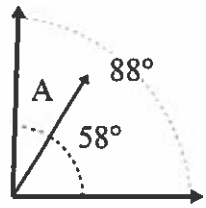
∠**BCA** = _____

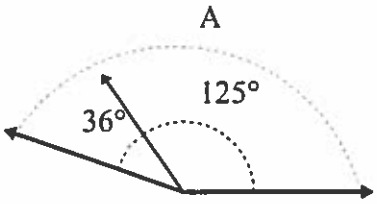
∠**BAC** = _____

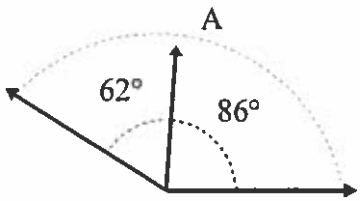
Finding Missing Angle

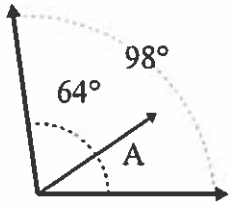
Name:

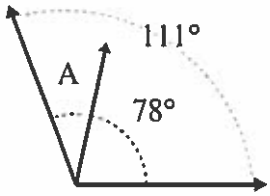
Determine the value of 'A'.

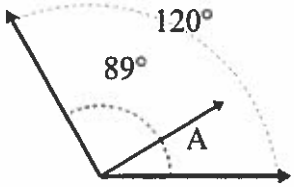
1) 

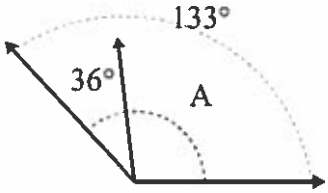
2) 

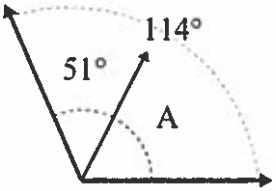
3) 

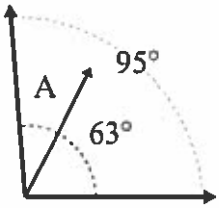
4) 

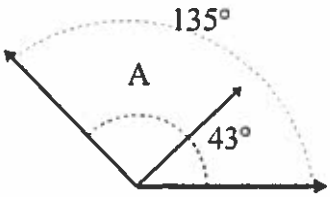
5) 

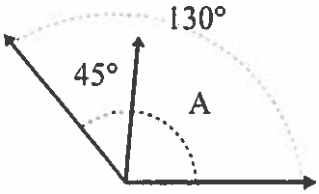
6) 

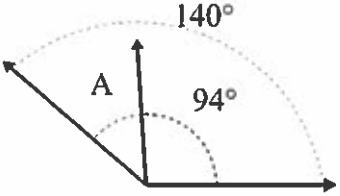
7) 

8) 

9) 

10) 

11) 

12) 

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

40

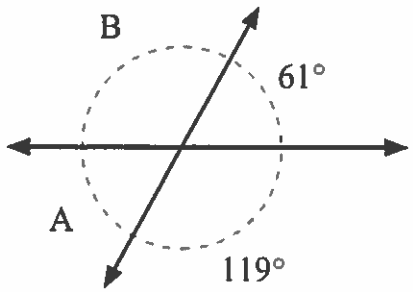
1-10	92	83	75	67	58	50	42	33	25	17
11-12	8	0								

Finding Missing Angles

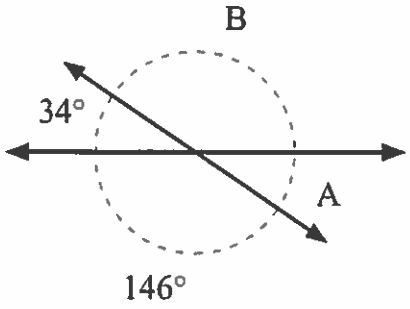
Name:

Find the value of angle 'A' and angle 'B'.

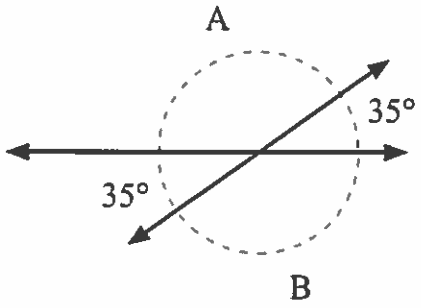
1)



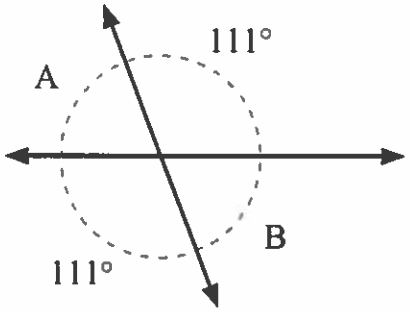
2)



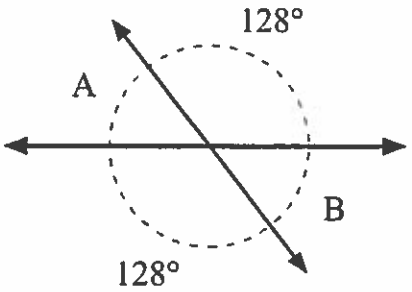
3)



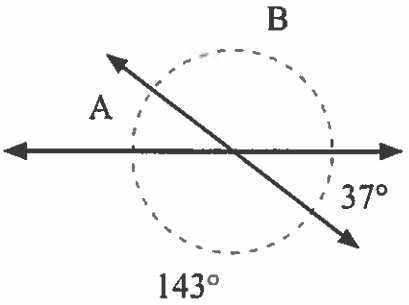
4)



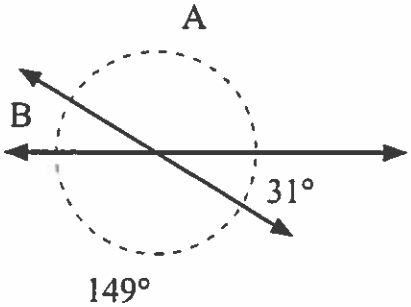
5)



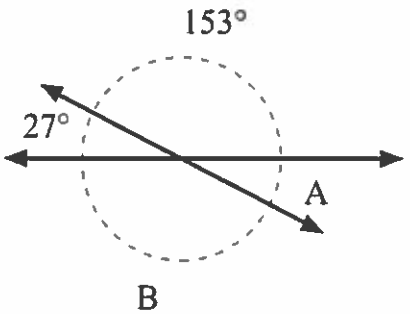
6)



7)



8)



Answers

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____
5. _____ _____
6. _____ _____
7. _____ _____
8. _____ _____

41

1-8	88	75	63	50	38	25	13	0

Finding Greatest Common Factor

Name:

Determine the greatest common factor (GCF) of each set of numbers.

12 , 16 To find the GCF of 12 & 16, first write down the factors of each number.

Factors of 12 1 , 2 , 3 , 4 , 6 , 12

Factors of 16 1 , 2 , 4 , 8 , 16

2 & 4 are factors both 12 and 16 have in common, with 4 being the greatest. So 4 is the GCF.

1) 21 , 12

Factors of 21 ____ , ____ , ____ , ____

Factors of 12 ____ , ____ , ____ , ____ , ____ , ____

2) 2 , 8

Factors of 2 ____ , ____

Factors of 8 ____ , ____ , ____ , ____

3) 6 , 2

Factors of 6 ____ , ____ , ____ , ____

Factors of 2 ____ , ____

4) 45 , 20

Factors of 45 ____ , ____ , ____ , ____ , ____ , ____

Factors of 20 ____ , ____ , ____ , ____ , ____ , ____

5) 42 , 6

Factors of 42 ____ , ____ , ____ , ____ , ____ , ____ , ____ , ____

Factors of 6 ____ , ____ , ____ , ____

6) 6 , 33

Factors of 6 ____ , ____ , ____ , ____

Factors of 33 ____ , ____ , ____ , ____

7) 24 , 27

Factors of 24 ____ , ____ , ____ , ____ , ____ , ____ , ____ , ____

Factors of 27 ____ , ____ , ____ , ____

8) 12 , 20

Factors of 12 ____ , ____ , ____ , ____ , ____ , ____

Factors of 20 ____ , ____ , ____ , ____ , ____ , ____

9) 21 , 27

Factors of 21 ____ , ____ , ____ , ____

Factors of 27 ____ , ____ , ____ , ____

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

42

1-9	89	78	67	56	44	33	22	11	0

Show your workings clearly in the space below it and write your answer in the space provided. Give your answers in the units stated.

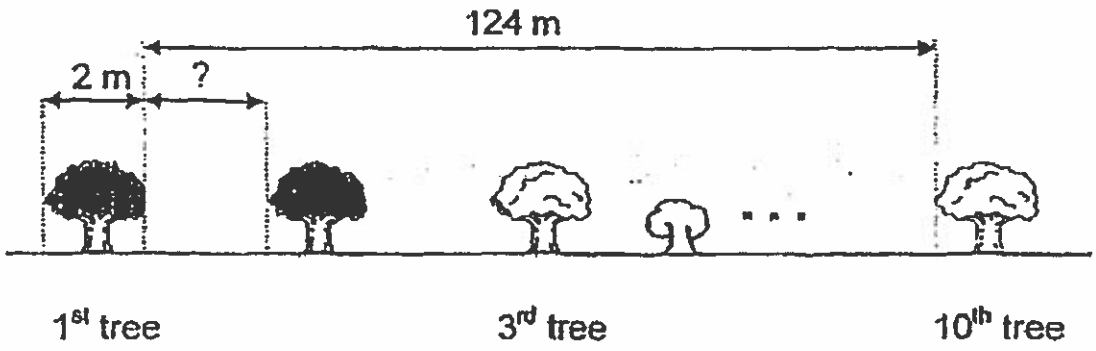
---

1. The perimeter of a rectangle is 44 m. Its length is 13 m. Find the breadth of the rectangle.

Ans: _____ m

---

2. There were 10 trees of the same width planted along one side of a straight road. The distance between every 2 trees was the same. The distance between the 1st tree and the 10th tree was 124 m. The width of a tree was 2 m. What was the distance between every 2 trees?



Ans: _____ m

---

3. Omar had 6250 cm of string. He cut it into 10 equal pieces. What would be the length of each piece of string? (Express your answer in metres)

Ans: _____ m

For each question, show your workings clearly in the space below and write your answer in the space provided. Remember to include the units wherever possible.

4. Ann spent $323 on 18 identical files and 5 identical dictionaries. Each file cost $11.

   (a) How much did she spend on the 18 files?

   (b) How much did 1 such dictionary cost?

Ans: (a) _____

(b) _____

---

5. Jamie bought 8 coconut and 4 pineapples for a total of $28 at a fruit stall. Each pineapple cost thrice as much as a coconut. How much did the 4 pineapples cost?

Ans: _____

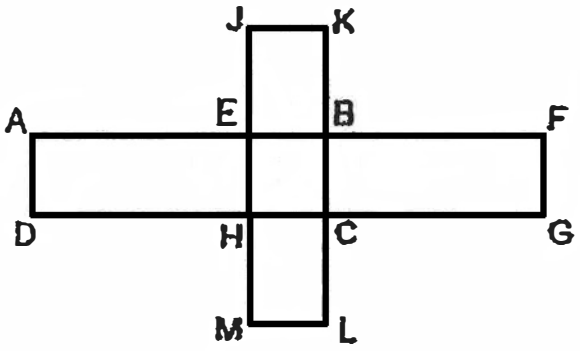
---

6. At first, Calissa had \$1795 and Esther had \$937. Each day, Calissa spent \$28 and Esther received \$5 from her mother. How many days did it take for them to have the same amount of money?

Ans: _____

---

7. The figure below is made up of 3 identical rectangles ABCD, EFGH and JKLM. The length of each rectangle is 8 cm. EBCH is a square with an area of 4 cm^2. Find the area of the figure.



Ans: _____

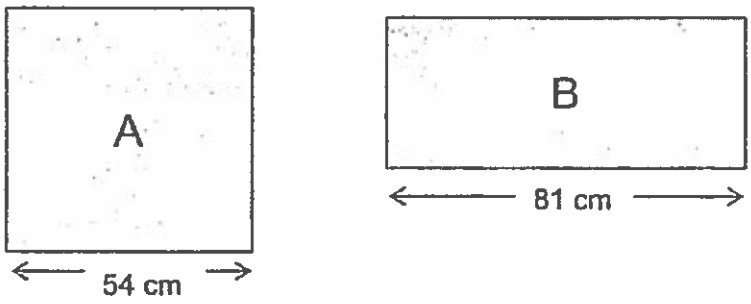
---

8. Mrs Choo has a sum of money. She can use all her money to buy either 6 identical blouses or 10 identical T-shirts. A blouse cost $8 more than a T-shirt. How much money does Mrs Choo have?

Ans: _____

---

9. Given that Square A and Rectangle B have the same area, find the perimeter of Rectangle B.



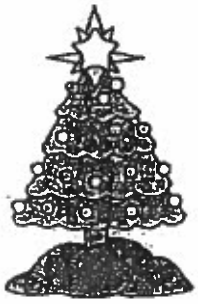
Ans: _____

---

10. Wendy wants to decorate a Christmas tree with coloured bulbs. She wants to use bulbs of 2 different colours. The blue bulbs blink every 6 seconds and red bulbs blink every 8 seconds.

(a) How many times do the red bulbs blink in a minute?

(b) How many times do the blue and red bulbs blink at the same time in a minute?



Ans: (a) _____

(b) _____

---

11. Jack bought a pair of pants that cost $25 more than a shirt and $8 less than a bag. He bought 3 pairs of pants, 2 shirts and 2 bags and paid a total of $379. How much did each pair of pants cost?

Ans: _____

---

12. 7 files and 4 storybooks cost $108.
5 files and 3 storybooks cost $80.
Find the total cost of 1 file and 1 storybook.

Ans: _____

---

13. During a National Day celebration ceremony, flag poles were placed from one end to the other end of a corridor. The flag poles were placed at an equal distance of 50 cm apart from each other. The corridor was 15 m long. The width of the flag poles was insignificant and did not affect the distance covered.

(a) Find the total number of flag poles required for the event.

(b) On the day of the celebration, 5 flag poles were removed and placed elsewhere. As a result, the remaining flagpoles were rearranged from one end to the other end of the corridor at a new equal spacing. What was the new spacing between 2 flag poles?

Ans: (a) _____

(b) _____

---

14. A piece of ribbon and a stick were of equal length. After Jeffrey cut 4.2 cm from the ribbon and 35.2 cm from the stick, the length of the remaining ribbon was 5 times as long as the remaining stick. What was the total length of the ribbon and stick at first?

Ans: _____

Add & Subtract Variables within 20

Name:

Find the value of the letter.

1) 20 - 13 = B B = _____

2) 20 = 7 + A A = _____

3) E = 4 + 1 E = _____

4) 14 + 1 = K K = _____

5) 5 = Y + 3 Y = _____

6) V + 18 = 20 V = _____

7) 8 = 4 + W W = _____

8) F = 19 - 4 F = _____

9) J + 9 = 13 J = _____

10) 7 = L - 5 L = _____

11) S = 9 + 11 S = _____

12) M - 15 = 1 M = _____

13) 12 = G + 8 G = _____

14) 12 - 9 = Z Z = _____

15) 13 - Q = 7 Q = _____

16) 14 + C = 16 C = _____

17) 11 = H - 4 H = _____

18) 8 + 5 = N N = _____

19) 12 + U = 17 U = _____

20) 3 = 12 - R R = _____

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. 50

1-10	95	90	85	80	75	70	65	60	55	50
11-20	45	40	35	30	25	20	15	10	5	0

Add & Subtract Variables within 100

Name:

Find the value of the letter.

46	69	48	44	93
23	73	28	98	20
88	85	50	6	100
30	92	57	21	28

1) $16 = W - 72$ W = _____

2) $52 - K = 8$ K = _____

3) $99 - 71 = J$ J = _____

4) $76 - 19 = R$ R = _____

5) $77 = L + 47$ L = _____

6) $N = 66 + 27$ N = _____

7) $20 = G - 78$ G = _____

8) $42 + F = 62$ F = _____

9) $C + 26 = 74$ C = _____

10) $Y + 43 = 64$ Y = _____

11) $72 = 95 - M$ M = _____

12) $78 = E + 32$ E = _____

13) $61 + 12 = A$ A = _____

14) $88 + 12 = H$ H = _____

15) $B = 62 - 12$ B = _____

16) $98 = 92 + S$ S = _____

17) $96 - U = 68$ U = _____

18) $V - 80 = 5$ V = _____

19) $Q = 59 + 33$ Q = _____

20) $P = 84 - 15$ P = _____

Answers

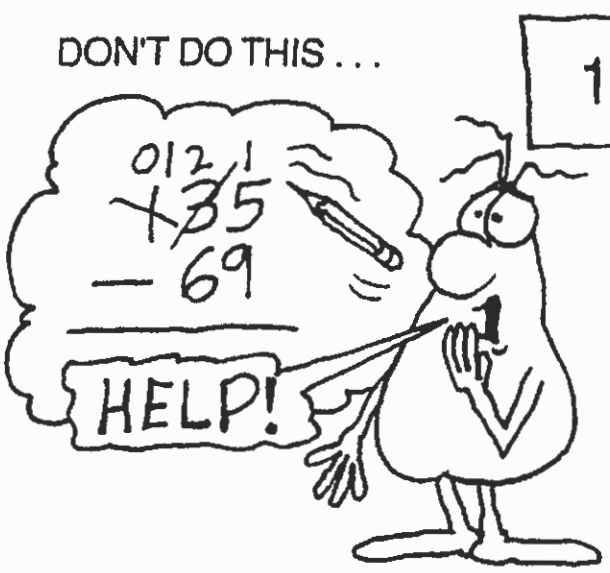
1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____
16. _____
17. _____
18. _____
19. _____
20. 51

1-10	95	90	85	80	75	70	65	60	55	50
11-20	45	40	35	30	25	20	15	10	5	0

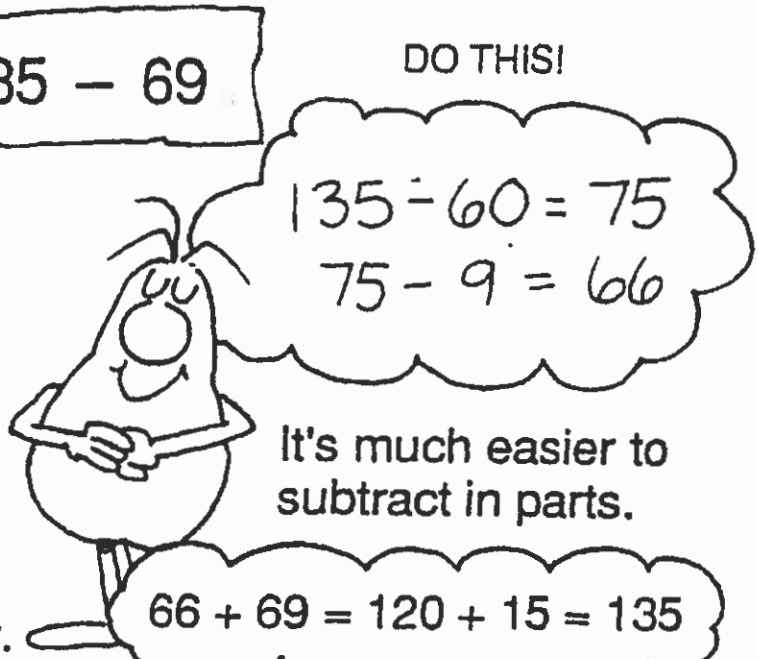
LESSON 5 SUBTRACTING IN PARTS

In mental math, when a subtraction problem needs regrouping . . .

DON'T DO THIS . . .



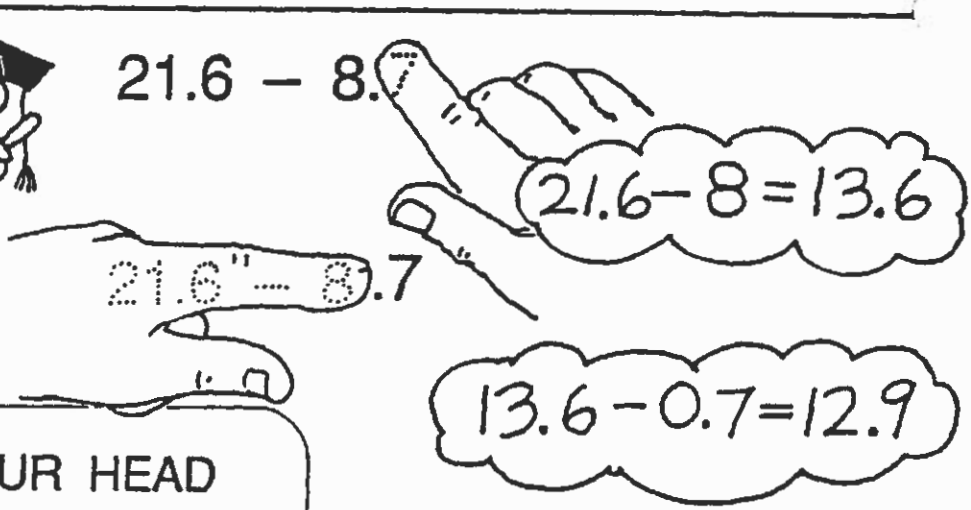
DO THIS!



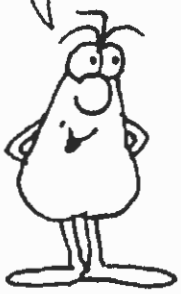
✓Check by adding mentally.

MENTAL MATH TIP

Use a finger to cover the parts as you think it through.



TRY THESE IN YOUR HEAD
Subtract in parts.



1. 75 – 36
2. 62 – 23
3. 120 – 57
4. 800 – 53
5. 1000 – 475
6. 500 – 125
7. 1.35 – 0.65
8. 6.25 – 1.45
9. 8 – 0.53
10. $10.00 – $3.50

POWER BUILDER A

1. 56 – 38 = _____
2. 80 – 44 = _____
3. 65 – 36 = _____
4. 50 – 29 = _____
5. 83 – 35 = _____
6. 90 – 36 = _____
7. 9.0 – 3.6 = _____
8. 8.2 – 1.9 = _____
9. 5.4 – 2.6 = _____
10. 9 – 7.8 = _____
11. 400 – 125 = _____
12. 534 – 225 = _____
13. 800 – 275 = _____
14. 775 – 485 = _____
15. 900 – 355 = _____
16. 1000 – 825 = _____
17. 6.35 – 2.55 = _____
18. 8.37 – 4.38 = _____
19. $20.00 – $3.75 = _____
20. $10.00 – $8.63 = _____

THINK IT THROUGH

The difference between two numbers is 25. If the numbers are tripled, what is the difference between the numbers?

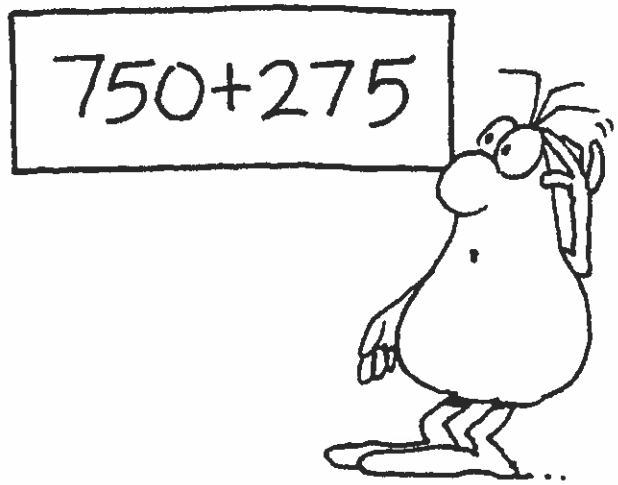
POWER BUILDER B

1. 45 – 27 = _____
2. 60 – 33 = _____
3. 84 – 55 = _____
4. 70 – 38 = _____
5. 93 – 46 = _____
6. 80 – 49 = _____
7. 8.0 – 2.5 = _____
8. 7.8 – 2.9 = _____
9. 7.5 – 2.6 = _____
10. 6 – 3.7 = _____
11. 400 – 150 = _____
12. 627 – 418 = _____
13. 543 – 244 = _____
14. 1000 – 650 = _____
15. 800 – 450 = _____
16. 1000 – 735 = _____
17. 8.25 – 3.45 = _____
18. 9.45 – 3.46 = _____
19. $10.00 – $2.25 = _____
20. $20.00 – $6.55 = _____

THINK IT THROUGH

The difference between two numbers is 19. If the numbers are doubled, what is the difference between the numbers?

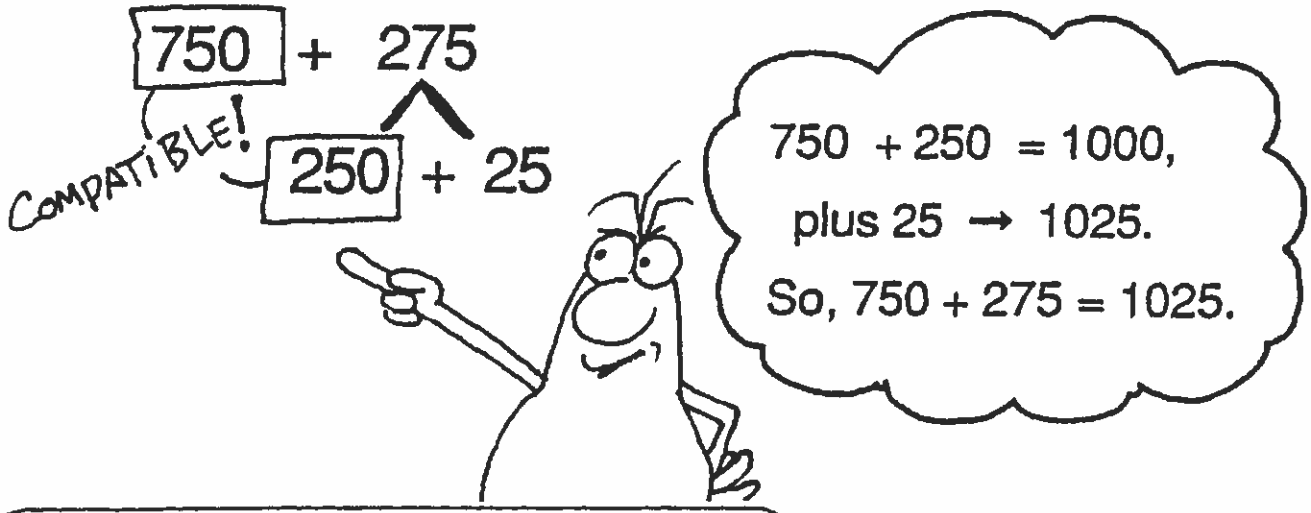
LESSON 7 MAKE YOUR OWN COMPATIBLES



Adding in your head is easier when you make your own compatible pairs, then adjust.

Like this . . .

Make your own compatibles. Adjust the answer.



TRY THESE IN YOUR HEAD.
Make compatibles and adjust.

1. 75 + 28	**4.** 427 + 75	**7.** 795 + 206
2. 69 + 35	**5.** 450 + 65	**8.** 253 + 752
3. 188 + 213	**6.** 580 + 423	**9.** 1150 + 356
		10. 1250 + 757

54

POWER BUILDER A

1. 25 + 79 = _____
2. 45 + 57 = _____
3. 18 + 85 = _____
4. 75 + 28 = _____
5. 68 + 33 = _____
6. 159 + 42 = _____
7. 125 + 277 = _____
8. 468 + 35 = _____
9. 109 + 393 = _____
10. 254 + 349 = _____
11. 435 + 568 = _____
12. 295 + 706 = _____
13. 455 + 456 = _____
14. 263 + 738 = _____
15. 375 + 526 = _____
16. 276 + 727 = _____
17. 459 + 544 = _____
18. 2500 + 501 = _____
19. 425 + 176 = _____
20. 725 + 277 = _____

THINK IT THROUGH

If 867 + 133 = 1000, what is 867 + 135?
868 + 132? 8.67 + 1.33?

POWER BUILDER B

1. 75 + 26 = _____
2. 35 + 67 = _____
3. 19 + 82 = _____
4. 27 + 75 = _____
5. 65 + 38 = _____
6. 143 + 58 = _____
7. 275 + 127 = _____
8. 235 + 67 = _____
9. 362 + 139 = _____
10. 155 + 249 = _____
11. 345 + 659 = _____
12. 307 + 695 = _____
13. 285 + 717 = _____
14. 155 + 846 = _____
15. 518 + 485 = _____
16. 475 + 426 = _____
17. 365 + 337 = _____
18. 4246 + 555 = _____
19. 425 + 376 = _____
20. 525 + 478 = _____

THINK IT THROUGH

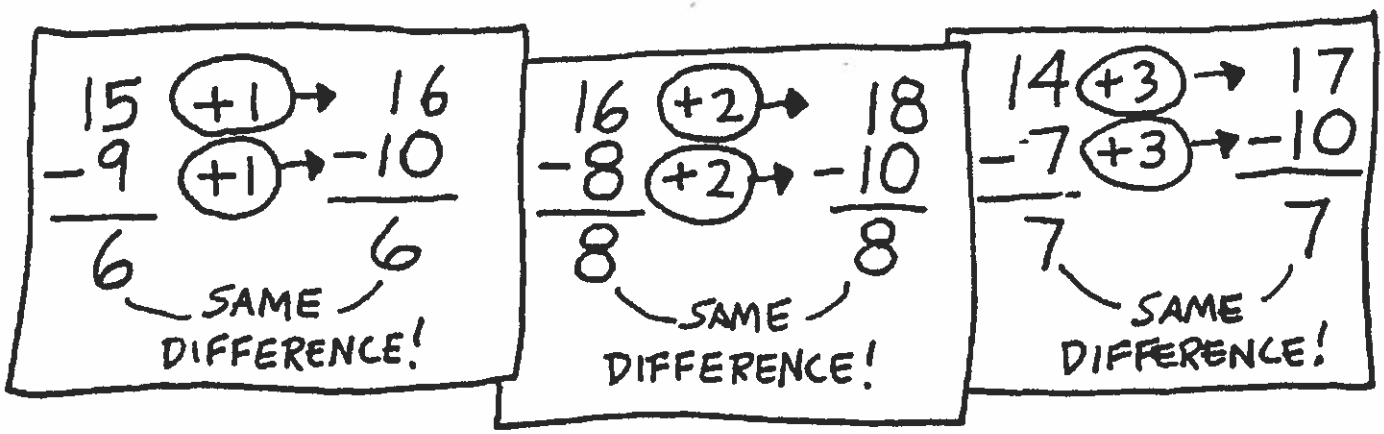
If 655 + 1345 = 2000, what is 655 + 1355?
645 + 1355? 6.55 + 13.45?

55

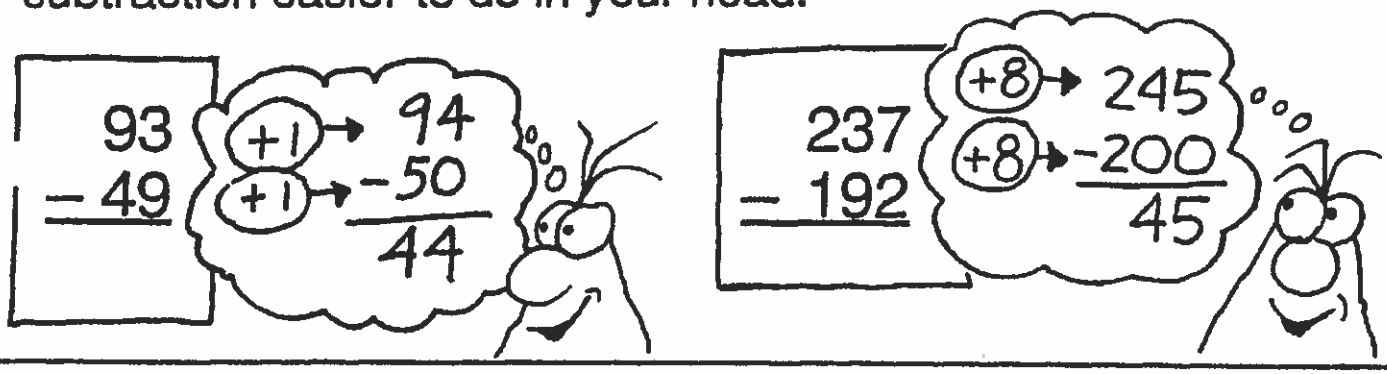
LESSON 12 SUBTRACTING BY BALANCING

When you add the same amount to each number in a subtraction problem, the answer does not change.

Adding to both numbers **balances** the problem.



Balancing can sometimes make subtraction easier to do in your head.



MENTAL MATH TIP

Add whatever you need to change the subtrahend (second number) into an easily subtracted number.

TRY THESE IN YOUR HEAD.
Use balancing to make it easier.

1. 96 − 59
2. 65 − 19
3. 76 − 27
4. 132 − 88
5. 151 − 97
6. 233 − 95
7. 583 − 298
8. 846 − 399
9. 2100 − 1998
10. 4363 − 3999

POWER BUILDER A

1. 85 – 49 = _____
2. 73 – 59 = _____
3. 84 – 37 = _____
4. 62 – 28 = _____
5. 126 – 89 = _____
6. 253 – 78 = _____
7. 461 – 95 = _____
8. 282 – 99 = _____
9. 544 – 77 = _____
10. 632 – 88 = _____
11. 469 – 198 = _____
12. 753 – 187 = _____
13. 641 – 285 = _____
14. 704 – 475 = _____
15. 333 – 189 = _____
16. 4874 – 596 = _____
17. 8343 – 997 = _____
18. 6454 – 2198 = _____
19. 7826 – 1997 = _____
20. 9544 – 7985 = _____

THINK IT THROUGH

Subtract the largest 3-digit odd number from the largest 4-digit even number.

POWER BUILDER B

1. 76 – 39 = _____
2. 84 – 48 = _____
3. 92 – 67 = _____
4. 65 – 38 = _____
5. 146 – 79 = _____
6. 273 – 85 = _____
7. 372 – 96 = _____
8. 233 – 99 = _____
9. 444 – 77 = _____
10. 745 – 78 = _____
11. 457 – 199 = _____
12. 845 – 188 = _____
13. 832 – 395 = _____
14. 803 – 565 = _____
15. 666 – 178 = _____
16. 6752 – 375 = _____
17. 9254 – 1999 = _____
18. 7243 – 4998 = _____
19. 8435 – 2997 = _____
20. 9635 – 8988 = _____

THINK IT THROUGH

Subtract the largest 4-digit odd number from the smallest 5-digit even number.

67 − 28	69 − 30	
43 − 15	48 − 20	
87 − 40	86 − 39	

Which problem in each pair is easier? Why?

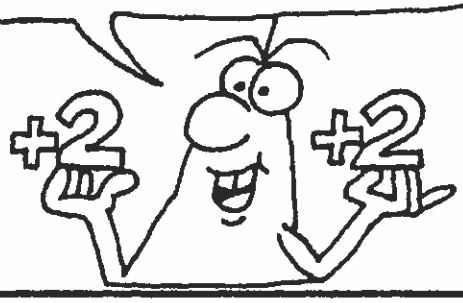
"Making tens" can help you subtract in your head.

55 − 28

Adding 2 to 28 makes 30. That's easier to subtract. Then I'll adjust 55, too, to balance.

55 + 2 → 57
−28 + 2 → −30
27

Remember: Adding the same amount to both numbers leaves the difference unchanged!



TRY THESE IN YOUR HEAD.
Make tens and balance.

1. 83 − 28	**3.** 72 − 45	**5.** 70 − 23	**8.** 82 − 37
		6. 65 − 48	**9.** 75 − 27
2. 54 − 39	**4.** 81 − 54	**7.** 90 − 36	**10.** 93 − 39

POWER BUILDER A

1. 53 − 28 = _____
2. 44 − 19 = _____
3. 71 − 35 = _____
4. 85 − 29 = _____
5. 50 − 28 = _____
6. 45 − 17 = _____
7. 81 − 39 = _____
8. 56 − 37 = _____
9. 37 − 16 = _____
10. 42 − 28 = _____
11. 83 − 25 = _____
12. 46 − 29 = _____
13. 71 − 38 = _____
14. 82 − 26 = _____
15. 66 − 18 = _____
16. 80 − 29 = _____
17. 46 − 18 = _____
18. 94 − 49 = _____
19. 90 − 65 = _____
20. 73 − 56 = _____

THINK IT THROUGH

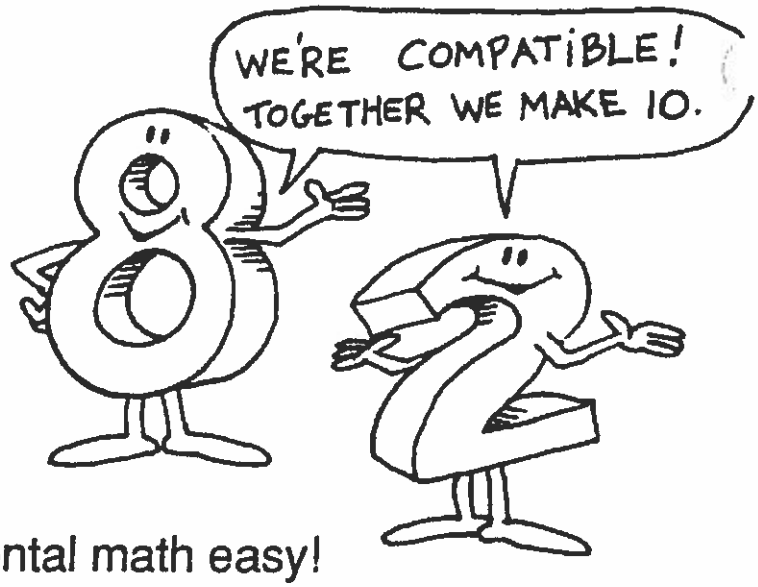
Subtract the largest two-digit even number from the largest three-digit even number.

POWER BUILDER B

1. 52 − 19 = _____
2. 83 − 28 = _____
3. 44 − 26 = _____
4. 55 − 17 = _____
5. 70 − 27 = _____
6. 51 − 29 = _____
7. 62 − 38 = _____
8. 71 − 19 = _____
9. 65 − 28 = _____
10. 82 − 66 = _____
11. 93 − 15 = _____
12. 66 − 39 = _____
13. 81 − 48 = _____
14. 92 − 35 = _____
15. 76 − 47 = _____
16. 70 − 28 = _____
17. 36 − 19 = _____
18. 84 − 36 = _____
19. 80 − 45 = _____
20. 83 − 49 = _____

THINK IT THROUGH

Subtract the smallest three-digit odd number from the smallest four-digit odd number.



Two numbers that total a nice "tidy" sum (like 10, or 100, or 1000) are called **compatible numbers.**

45 and 55 are compatible.
So are 360 and 640.

Compatible numbers make mental math easy! Learn to recognize them.

Find compatible pairs.			
4	60	40	71
56	75	29	30
44	33	12	67
96	70	88	25

Find compatible pairs.			
400	300	550	600
510	620	250	100
630	900	700	380
450	750	490	370

TRY THESE. USE YOUR HEAD.
Think about compatible numbers.

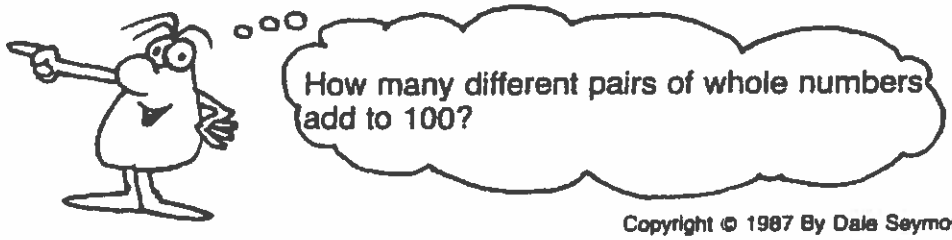
1. On scrap paper, list number pairs that total 100. Write as many as you can in one minute. GO!

2. How many different pairs of numbers total 1000?

POWER BUILDER A

1. 35 + _____ = 100
2. 94 + _____ = 100
3. 31 + _____ = 100
4. 46 + _____ = 100
5. 25 + _____ = 100
6. 100 − 17 = _____
7. 100 − 53 = _____
8. 100 − 62 = _____
9. 100 − 95 = _____
10. 100 − 39 = _____
11. 400 + _____ = 1000
12. 250 + _____ = 1000
13. 950 + _____ = 1000
14. 899 + _____ = 1000
15. 375 + _____ = 1000
16. 1000 − 501 = _____
17. 1000 − 695 = _____
18. 1000 − 99 = _____
19. 1000 − 725 = _____
20. 1000 − 645 = _____

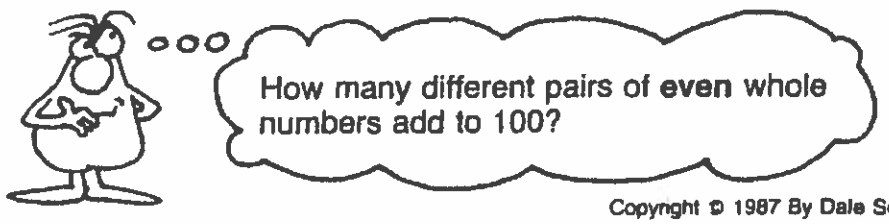
THINK IT THROUGH



POWER BUILDER B

1. 50 + _____ = 100
2. 93 + _____ = 100
3. 49 + _____ = 100
4. 15 + _____ = 100
5. 33 + _____ = 100
6. 100 − 75 = _____
7. 100 − 8 = _____
8. 100 − 29 = _____
9. 100 − 80 = _____
10. 100 − 42 = _____
11. 700 + _____ = 1000
12. 975 + _____ = 1000
13. 499 + _____ = 1000
14. 450 + _____ = 1000
15. 95 + _____ = 1000
16. 1000 − 125 = _____
17. 1000 − 901 = _____
18. 1000 − 255 = _____
19. 1000 − 650 = _____
20. 1000 − 575 = _____

THINK IT THROUGH



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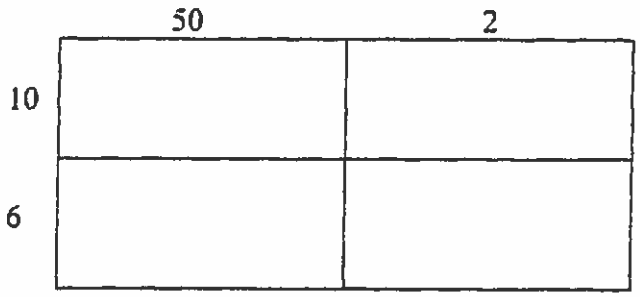
2 Digit by 2 Digit Multiplication **Name:** _____
Explaining in different ways Activity

Rather than try to multiply numbers by using a memorized method below:

Ex. 52
x 16
312
520
832

Let's try to explain how we can do multiplying by breaking up the numbers into tens and ones.

52 = 50 + 2 and 16 = 10 + 6 a)Then let's multiply each of the 4 numbers and write the answers inside the spaces in the box. b) Lastly, let's add up the four numbers from the boxes.



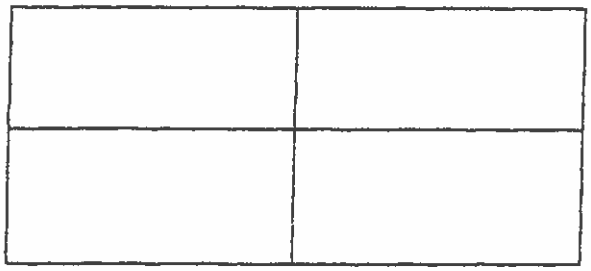
If we add up the 4 multiplications that we did in the box, we get _____ .

This question can also be written like this:

(50 + 2)x(10+6) = (50 x 10) + (50 x 6) + (2 x 10) + (2 x 6) = _____

Let's practice!

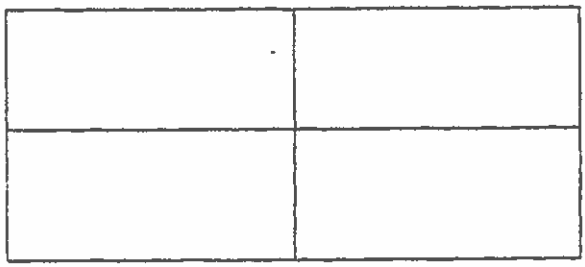
1) 24 x 22



Add the four boxes totals up =

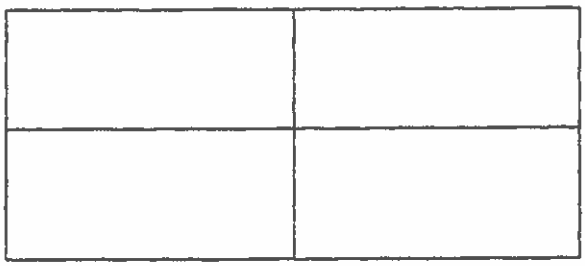
_____

2) 25 x 34



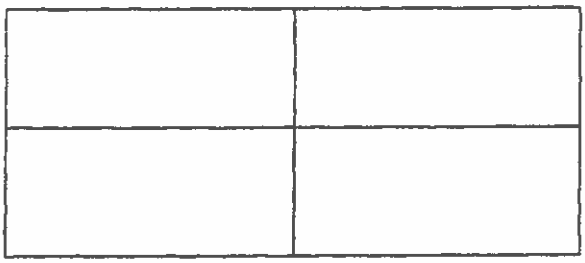
3) 42 x 16

2) Answer:_____



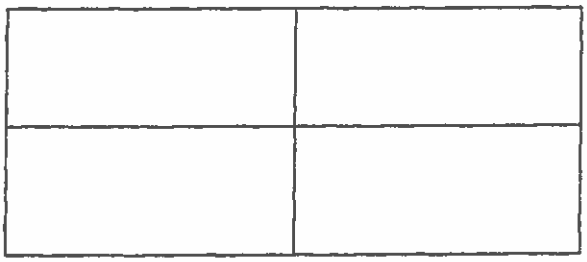
4) 13 x 24

3) Answer:_____



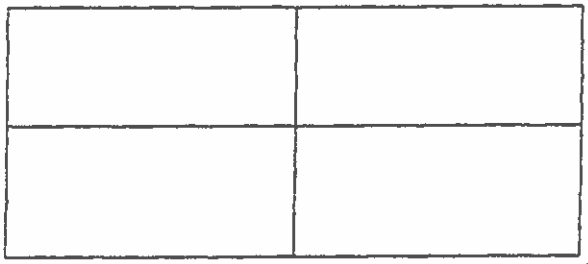
5) 51 x 37

4) Answer:_____



6) 19 x 27

5) Answer:_____

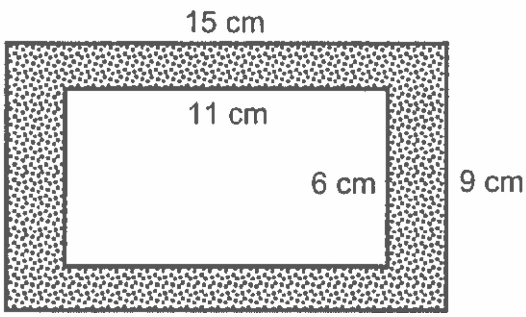


6) Answer: _____

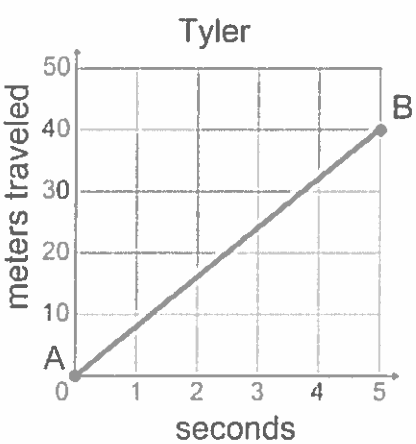
1. Who charges less for a dozen donuts?

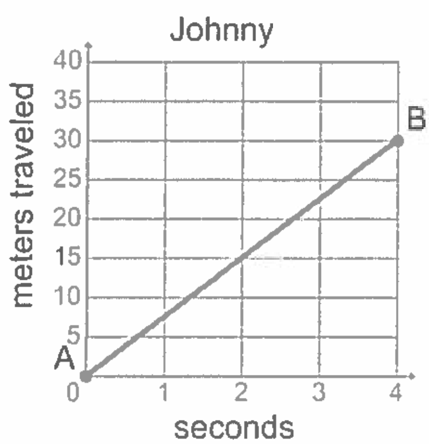
Daisy's Donuts	Freda's Donuts
• 60¢ per donut • $2 off if you buy a dozen	• 50¢ per donut • 20% off if you buy a dozen

2. Which is larger: the shaded area or the unshaded area?



3. Who runs at a faster speed from A to B?





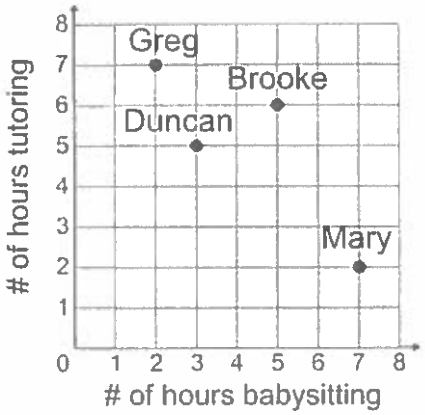
64

4. How many jelly beans must be transferred from the left jar to the right jar so that the two jars end up with exactly the same number of jelly beans?

253 jelly beans

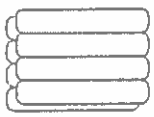
87 jelly beans

5. Babysitting earns $12 per hour and tutoring earns $20 per hour. Who earns the largest amount of dollars from a combination of babysitting and tutoring? Who earns the least amount of dollars?



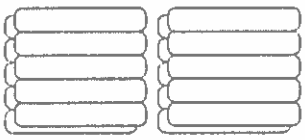
6. Which package charges less for 1 hot dog?

$2.80



8 hot dogs

$6.40



20 hot dogs

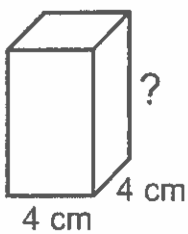
65

7. Rearrange from least to greatest.

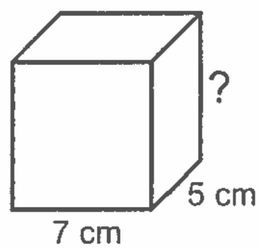
A:	B:	C:	D:	E:
$\frac{3}{10}$	$\frac{7}{20}$	$\frac{11}{30}$	$\frac{17}{60}$	$\frac{1}{3}$

8. Which box has a greater height?

volume = 144 cm^3



volume = 280 cm^3



9. Who is taller?

Jake's height is 155 centimeters.

Daniel's height is 5 feet, 3 inches.

1 inch = 2.54 centimeters
1 foot = 12 inches

10. Which is larger?

a. 3^2 or 2^3 b. 5^2 or 2^5 c. 8^2 or 2^8

d. 4^3 or 3^4 e. 8^1 or 1^8 f. 5^3 or 3^5

11. Which food item has more fat calories?

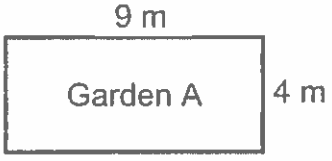
cheeseburger has 300 calories

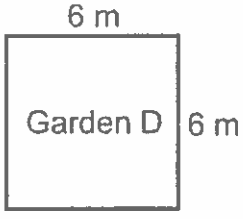
40% of the calories are from fat

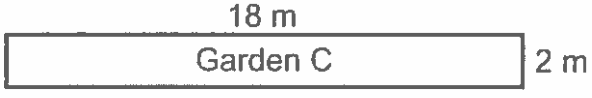
donut has 200 calories

55% of the calories are from fat

12. A landscape designer wants to build a rectangular garden that has an area of 36 square meters and is completely enclosed by a wooden fence. Which garden would require the most amount of fencing? Which would require the least amount of fencing?

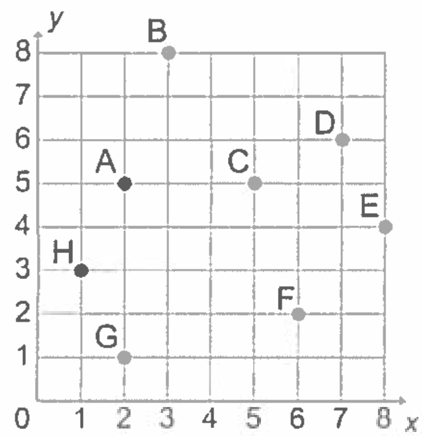




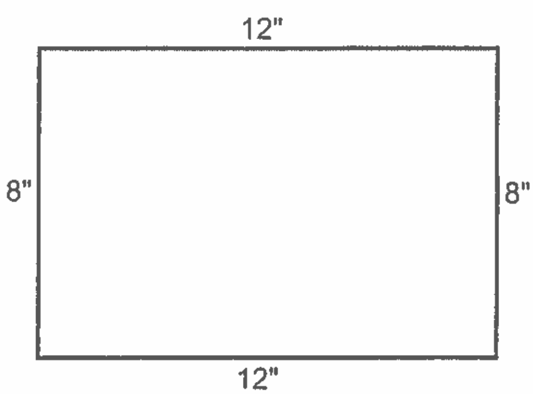


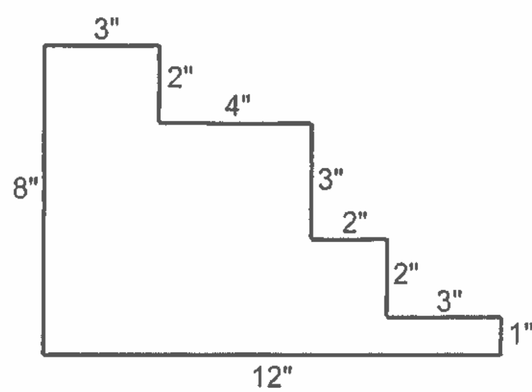
19. The number $2\frac{1}{3}$ is closer to which number on the number line: $\frac{2}{3}$ or $3\frac{5}{6}$?

20. Point A is the ordered pair (2, 5) and the sum of its coordinates is 2 + 5 = 7. Which of the labeled points has the largest sum of its coordinates? Which has the smallest sum of its coordinates?



21. Which shape has a greater perimeter?





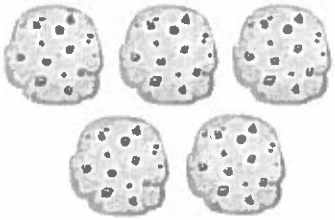
22. What must be the price of a cupcake for Nicky's desserts to have the same total cost as Allie's desserts?

Nicky's desserts

2 cupcakes + 1 cookie

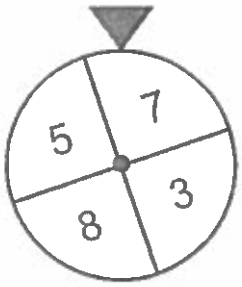
price of each cookie is $1.40

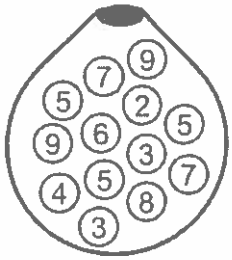
Allie's desserts



5 cookies

23. What is more likely: having the spinning wheel land on the region containing the number 8 or randomly selecting a 5 from the bag of numbered balls?





24. Which city is hotter?

New York temperature is 84° Fahrenheit

Toronto temperature is 30° Celsius

F = Fahrenheit degrees
C = Celsius degrees

$$F = \frac{9}{5} \times C + 32$$

31. Which is larger?

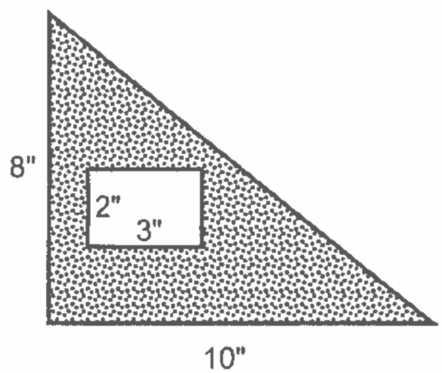
a. $3 \div \frac{1}{3}$ or $4 \div \frac{1}{4}$

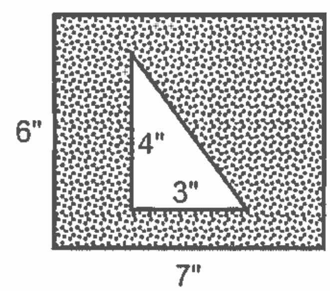
b. $15^2 - 14^2$ or $13^2 - 12^2$

c. $\frac{2}{3} + \frac{3}{2}$ or $\frac{3}{4} + \frac{4}{3}$

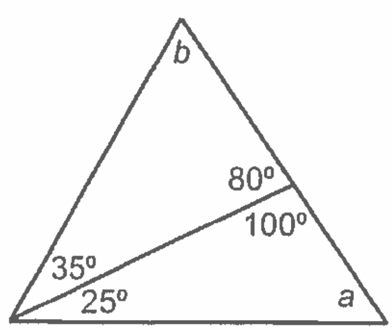
d. $6 \div 9$ or $5 \div 8$

32. Which shaded region has a greater area?





33. Which angle is larger: *a* or *b*?

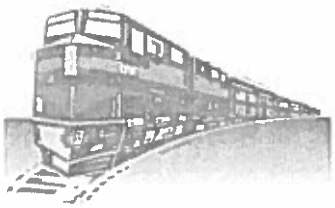


34. What is larger: the *difference* between the father's weight and the son's weight or the *average* of their two weights?

dad weighs
190 pounds

son weighs
60 pounds

35. Which trip takes less time?



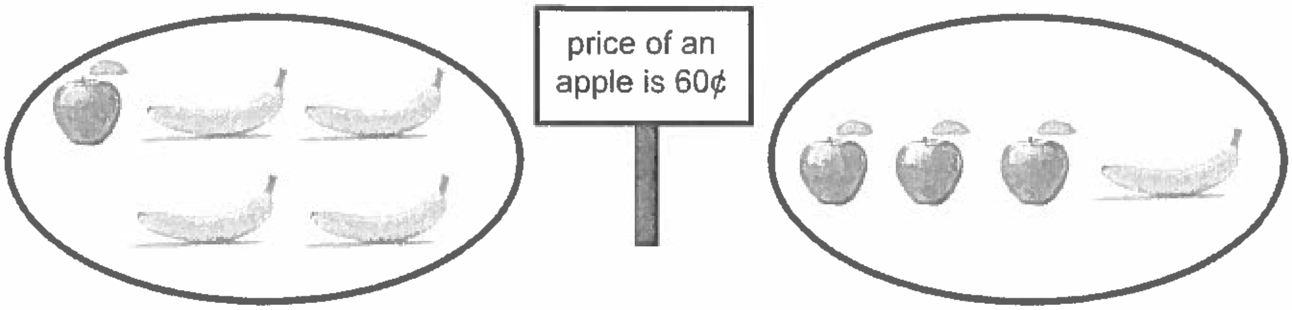
Train travels 500 miles at an average speed of 90 mph.

Car travels 320 miles at an average speed of 60 mph.

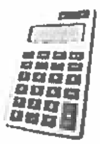
36. Which box has a different value from the others?

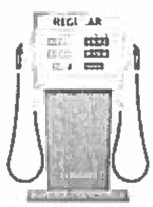
A	B	C	D	E
60% of 30	$\frac{9}{0.5}$	$\frac{34}{3}+\frac{23}{3}$	$3 \div \frac{1}{6}$	$\frac{3}{4}$ of 24

40. What must be the price of a banana for the left fruit plate to have the same cost as the right fruit plate? (Each banana has the same price.)

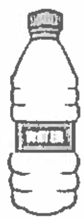


41. Which costs less: 1 fluid ounce of gasoline or 1 fluid ounce of bottled water?





$2.56 for 1 gallon of gasoline

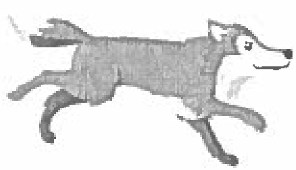


$1.44 for 1 bottle of water containing 24 fluid ounces

1 gallon = 128 fluid ounces

42. Who travels at a faster speed?

coyote



10 meters/second

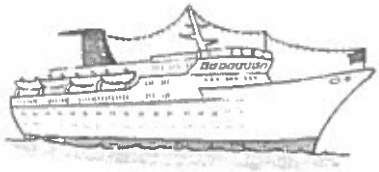
cyclist

35 kilometers/hour

1 kilometer = 1,000 meters
1 hour = 60 minutes
1 minute = 60 seconds

43. Which ship takes less time to reach its destination?

Adventure Cruise



Departed: July 21, 7:30 am
Arrived: July 24, 5:45 pm

Luxury Liner

Departed: August 5, 10:50 pm
Arrived: August 9, 8:40 am

44. Which dinner costs less?

Turkey Dinner
- **menu price: $18**
- **discount coupon: 20% off menu price**

Prime Rib Dinner
- **menu price: $25**
- **discount coupon: 40% off menu price**

45. How many slices of pizza must you eat for the "All You Can Eat Deal" to be a better deal than the "One Slice at a Time Deal"?

One Slice at a Time Deal	All You Can Eat Deal
Each slice of pizza costs $1.50.	Eat as many slices of pizza as you want for $10.00.

9. Integer Magic

Name: ______________________________

1. A Magic Square is a square of numbers whose columns, rows, and diagonals each add up to the same number. For example, in the Magic Square below, each column, row, and diagonal add up to 12. Check to make sure that this is true and that you understand the idea.

5	0	7
6	4	2
1	8	3

Fill in the empty boxes below to make a Magic Square. Note that the numbers do not add up to 12 in the Magic Squares below. Each Magic Square has its own sum.

a.

-1		
	-3	
6		-5

b.

-4		-11
-13		
-1		

c.

		-4
-2	-1	0

2. Find the mean, median, and range of the numbers below.

-9   7   -3   -16   1   -22

3. For each sequence of numbers, what is the 10th number in the sequence?

   a. 20, 13, 6, -1, -8, …

   1st number

   b. -6, -9, -12, -15, -18, …

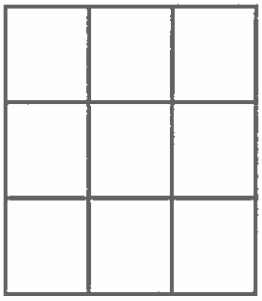
   c. 86, 70, 54, 38, 22, …

   d. -18, -31, -44, -57, -70, …

4. The table shows the low temperatures in Celsius degrees for the first 6 days of the week. If the mean low temperature for the entire week is -5 degrees, what is the low temperature on Sunday?

Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Low Temperature (Celsius degrees)	-11	-3	5	-18	-7	2	?

5. Place the integers -5, -4, -3, -2, -1, 0, 1, 2, 3 in the boxes below so that the numbers in each row, column, and diagonal add up to -3.



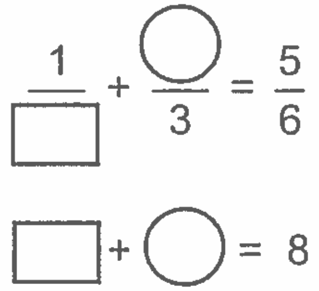
Math Facts

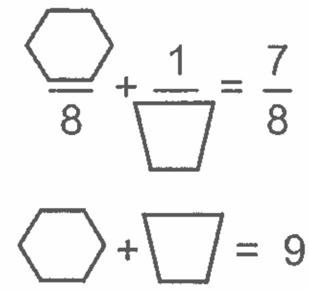
1. The *mean* of a set of numbers is the sum of the numbers divided by the amount of numbers in the set.
2. To find the *median* of a set of numbers, first order them from least to greatest. If the set has an odd amount of numbers, the median is the middle number in the ordered list. If the set has an even amount of numbers, the median is the mean of the two middle numbers in the ordered list.
3. The *range* of a set of numbers is the difference between the largest and smallest number in the set.

35. Fraction Explorer

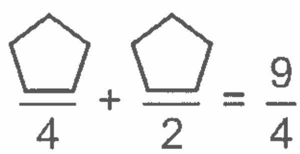
Name: ______________________

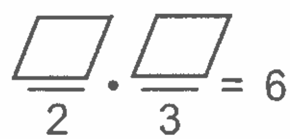
1. Each shape represents a different whole number. What is the value of each shape?

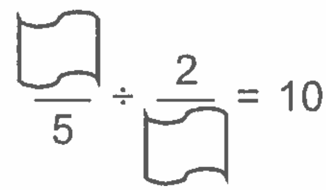
a. 

b. 

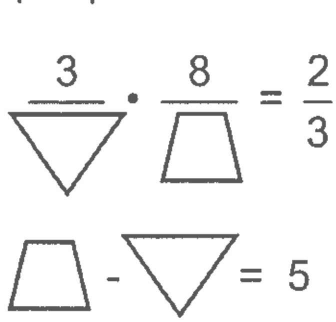
2. Each shape represents a different whole number. What is the value of each shape?

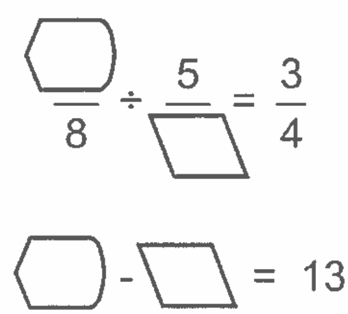
a. 

b. 

c. 

3. Each shape represents a different whole number. What is the value of each shape?

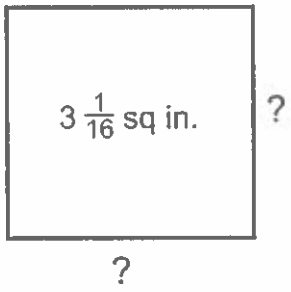
a. 

b. 

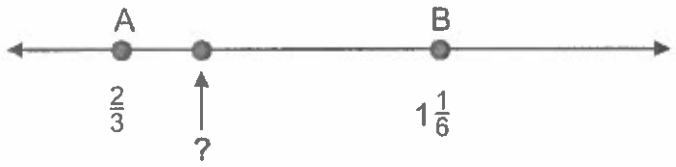
37. Fraction Finder

Name: _____

1. What mixed number is the side length of a square with an area of $3\frac{1}{16}$ square inches?



2. What simplified fraction is a quarter of the way between A and B on the number line?



3. The first 4 terms of a sequence are given. What simplified fraction is the tenth term in the sequence?

   $5\frac{1}{16}, 3\frac{3}{8}, 2\frac{1}{4}, 1\frac{1}{2}, \ldots$

Answers 1-12
$19a + 11$
$5x + 8$
$13a + 8b + 9$
$12x + 3y$
$11x$
$4a + 3b + 1$
$12a + 3b + 30$
$5x + 7$
$a + 16b + 10$
$x + 8y + 12$
$4a + 4b + 2$
$10a + 7b + 4$
$12a + 2b + 24$
$12x + 9y$
$8x + 9y$
$13a + 9b + 11$

Answers 13-24
$5x + 3y + 18$
$5x + 9y + 34$
$2x + 7y + 37$
$8x + 6$
$7x + 7y$
$2x + 8y + 35$
$4x + 27$
$8x + 13$
$9x + 5y + 10$
$5x + 10y + 33$
$11x + 20$
$9x + 7y + 9$
$7x + 15y + 30$
$6x + 13$
$11x + 8y$
$6x + 8$

SITRNATOWEBUYSOU BIGONGESLATRUNED

Why Did Oslo Go To The Sled and Sleigh Auction?

Cross out the letter next to each correct answer. When you finish, the answer to the title question will remain.

In Exercises 1-12, simplify the expression.

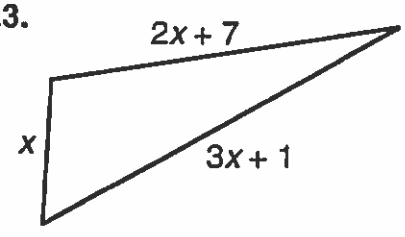
1. $5x + 6x$
2. $2x + 7 + 3x$
3. $4x + x + 8$
4. $2x + 9y + 6x$
5. $x + 3y + 12 + 5y$
6. $8x + y + 4x + 2y$
7. $3a + 7b + 4 + 7a$
8. $5a + 6 + a + 5 + 13a$
9. $2b + 8b + a + 6b + 10$
10. $9a + 4b + 4 + 4a + 5b + 7$
11. $24 + 6a + b + 3a + b + 3a$
12. $b + a + 2b + 2a + a + 1$

In Exercises 13-22, simplify the expression.

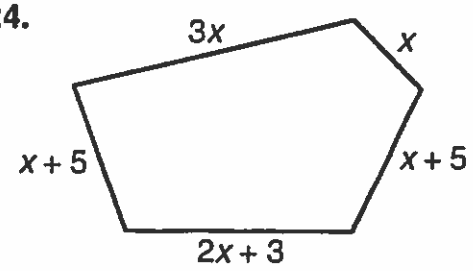
13. $3(x + 2) + 5x$
14. $7x + 4(x + 5)$
15. $7 + 4(x + 5)$
16. $2(x + y) + 9x + 6y$
17. $5(x + 3) + 3(y + 1)$
18. $6 + 6(x + 4) + 15y + x$
19. $3(x + y) + 4(y + x)$
20. $2y + 8(y + 1) + 5(x + 5)$
21. $9 + 2(x + 7) + 7(y + 2)$
22. $6(x + y) + y + 3(x + 3)$

In Exercises 23-24, write an expression for the perimeter of the polygon. Simplify the expression.

23.

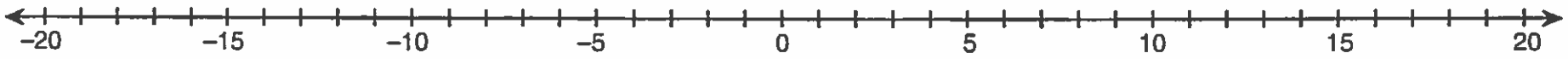


24.



Why Do Flies Always Bring Their Stopwatches to Parties?

Write an integer for each exercise. Find the point on the number line that corresponds to the integer. Write the letter of the exercise above the number line at that point.



Write an integer for each situation.

- (E) 3 units to the left of 0
- (S) the opposite of 8
- (N) 15 ft above sea level
- (E) a gain of 6 yd
- (I) 5° below zero
- (N) a deposit of $20
- (E) 14 steps backward
- (T) four seconds after liftoff
- (I) a loss of ten pounds
- (W) one floor down
- (E) 19 m below sea level
- (H) the opposite of −11

Write an integer for each expression.

- (A) $-(17)$
- (I) $-(-14)$
- (E) $|-1|$
- (R) $|8|$
- (U) $-n$ if $n = 16$
- (G) $-n$ if $n = -16$
- (B) $-(12 + 8)$
- (H) $|16 - 11|$
- (E) $-|9|$
- (S) $-|-15|$
- (A) $|x|$ if $x = -12$
- (F) $-|x|$ if $x = -12$

Write an integer for each question.

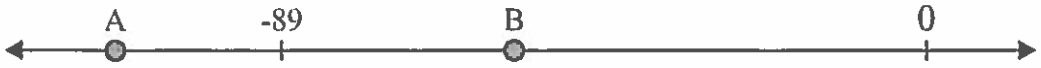
- (N) Which is greater, 2 or −13?
- (T) Which is greater, −7 or −6?
- (E) Which is greater, −11 or 9?
- (C) Which is less, −18 or −4?
- (U) Which is less, $|-20|$ or 19?
- (H) Which is less, 0 or $-(-3)$?

The table below gives the starting point, direction, and length of arrows drawn on the number line. Complete the table by writing the endpoint of each arrow.

Starting Point	Direction, Length	Endpoint
0	negative, 4	(M)
−2	positive, 9	(Y)
−2	negative, 9	(L)
5	positive 13	(F)
−10	positive, 23	(V)

Solve each problem.

1) Which letter best shows -112?



2) Which letter best shows -43?

3) Which letter best shows -84?

4) Which letter best shows -105?

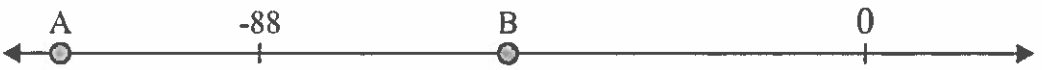
5) Which letter best shows -102?

6) Which letter best shows -25?

7) Which letter best shows -10?

8) Which letter best shows -116?

9) Which letter best shows -52?



10) Which letter best shows -123?

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

80

1-10	90	80	70	60	50	40	30	20	10	0

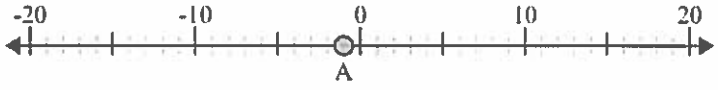
Understanding Absolute Value

Name:

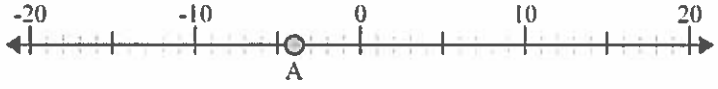
Use the numberlines to find the absolute value.

1) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?

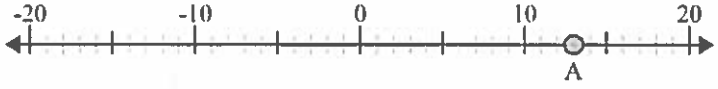
2) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?



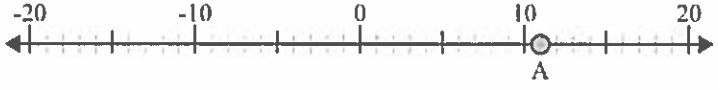
3) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?



4) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?

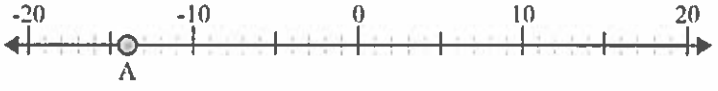


5) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?

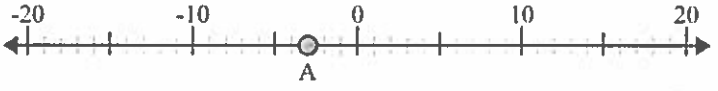


6) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?

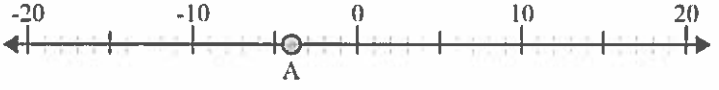
7) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?



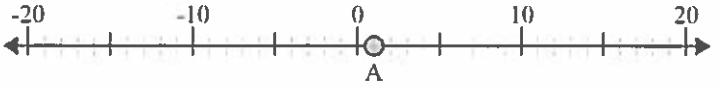
8) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?



9) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?



10) a. What is the value of 'A'?
b. How far is 'A' from 0 (absolute value)?



Answers

1. _____ _____
2. _____ _____
3. _____ _____
4. _____ _____
5. _____ _____
6. _____ _____
7. _____ _____
8. _____ _____
9. _____ _____
10. _____ _____

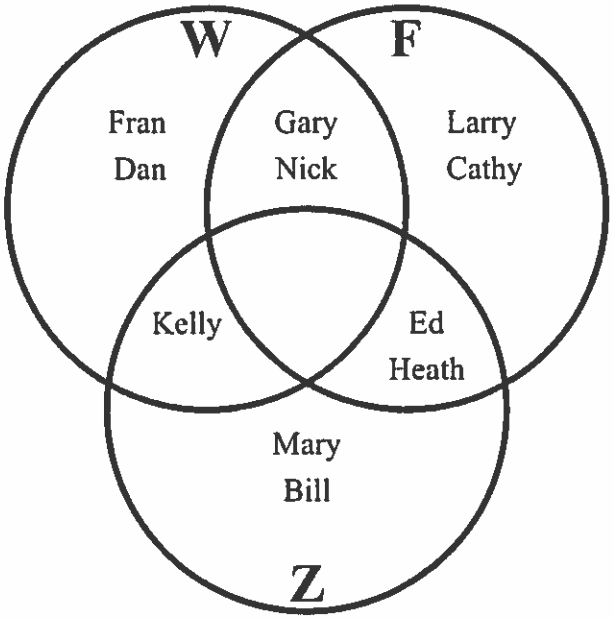
81

1-10	90	80	70	60	50	40	30	20	10	0

Reading a Venn Diagram

Name:

The diagram below shows the different places students had been in the last year. Water Park (W), Fair (F) and Zoo(Z). Use the diagram to answer the questions.



1) How many people had been to the water park?_____

2) How many people had been to the fair?_____

3) How many people had been to the zoo?_____

4) How many people had ONLY been to the water park?_____

5) How many people had ONLY been to the fair?_____

6) How many people had ONLY been to the zoo?_____

7) W∪Z = _____

8) Z∩W = _____

9) W-Z = _____

10) (W∩Z)-F = _____

11) (F∪W)-Z = _____

12) W = _____

13) WZF = _____

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. Line
8. Line
9. Line
10. Line
11. Line
12. Line
13. Line

82

1-10	92	85	77	69	62	54	46	38	31	23
11-13	15	8	0							

Balancing Equations

Name:

Determine the number that will correctly balance each equation.

12	47	68	34	11	76	36
42	24	10	73	37	13	10

1) 18 + 32 = ___ + 3

2) 26 + 11 = 27 + ___

3) 80 - 10 = ___ + 36

4) ___ + 13 + 33 = 15 + 44

5) ___ - 33 = 10 + 4 + 21

6) 121 - ___ = 49 + 10 + 26

7) 61 - 11 = ___ + 13

8) 66 - 27 = ___ - 37

9) ___ + 3 = 71 - 44

10) 45 + 16 + 17 = ___ + 36

11) 52 - 8 = ___ - 29

12) 48 - 12 = 46 - ___

13) 14 + 15 = ___ + 17

14) 93 - 45 = 2 + ___ + 35

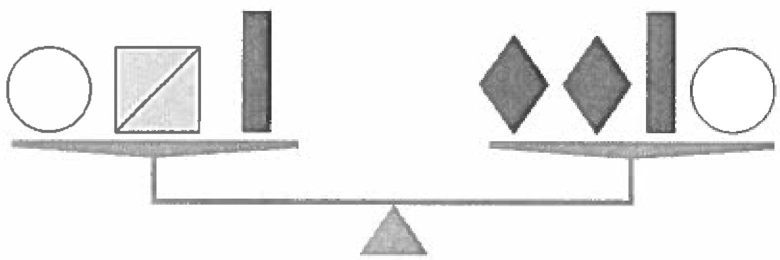
Answers

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____

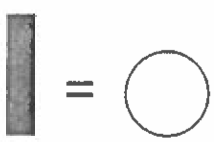
83

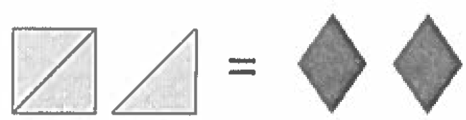
1-10	93	86	79	71	64	57	50	43	36	29
11-14	21	14	7	0						

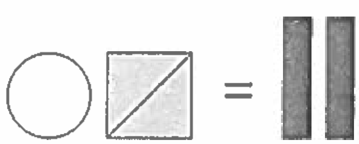
Balance Benders™

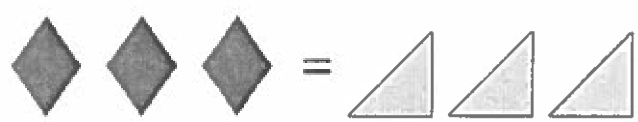


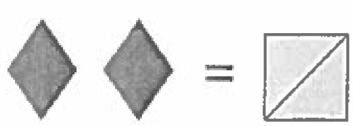
Circle the three answers below that will always be true.

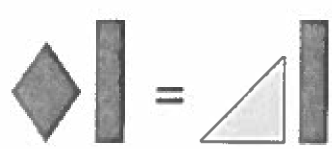
a. 

d. 

b. 

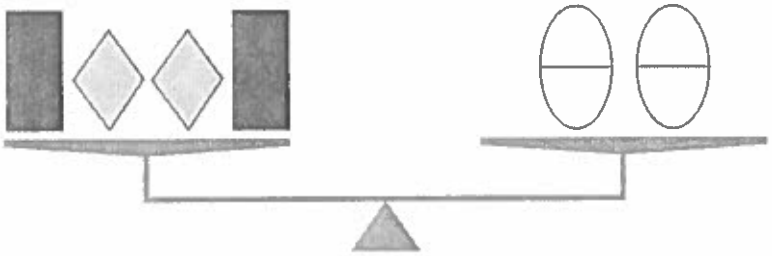
e. 

c. 

f. 

84

Balance Benders™



Circle the three answers below that will always be true.

a. ◇ < ⬭

b. ▮ > ◇

c. ⬭ > ▮

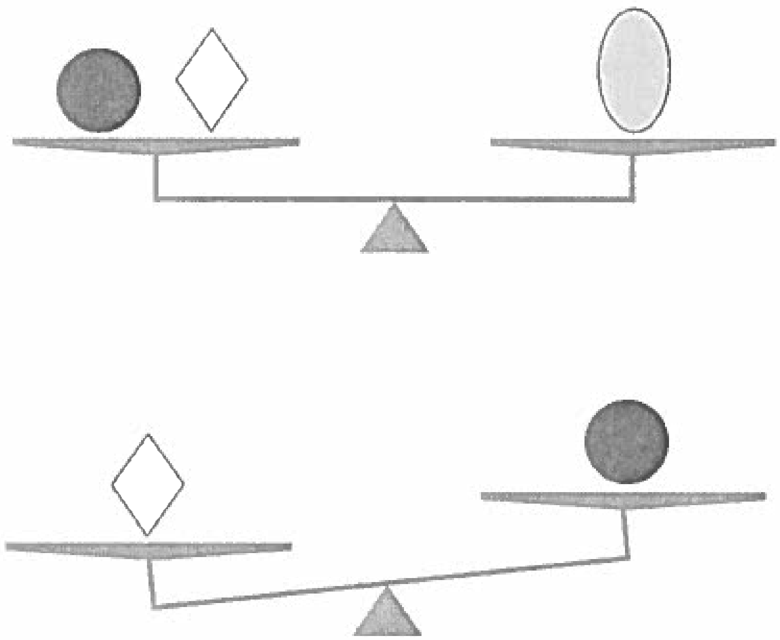
d. ⌓ > ▮

e. ◇ ▮ = ⬭

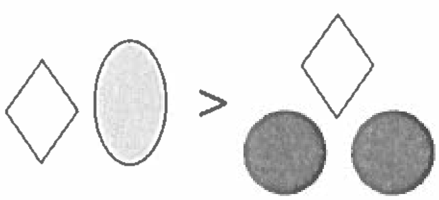
f. ◇ ⌓ > ⬭

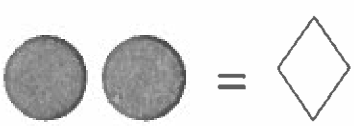
85

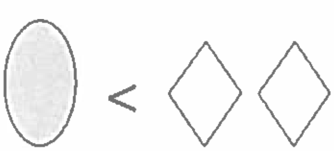
Balance Benders™

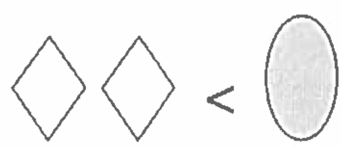


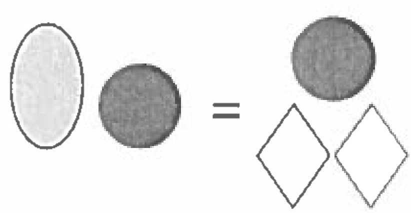
Circle the three answers below that will always be true.

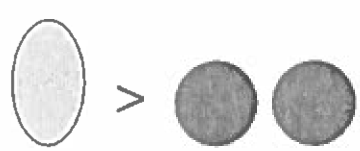
a. 

b. 

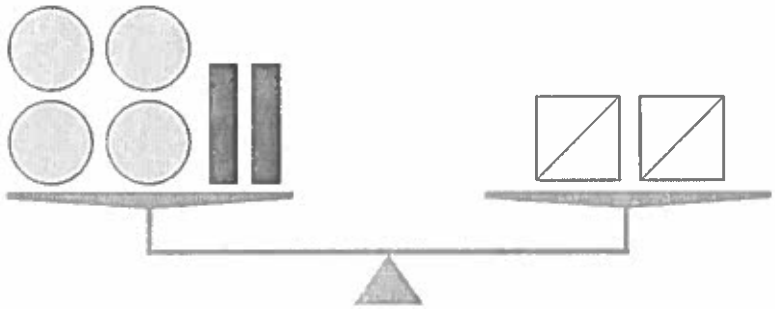
c. 

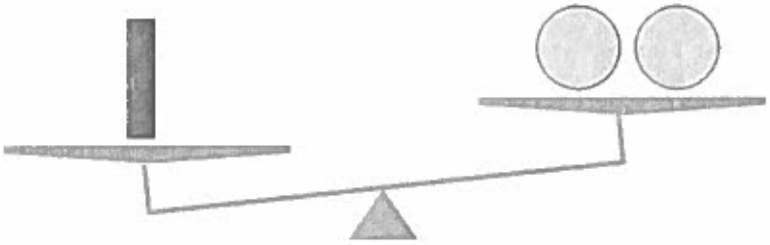
d. 

e. 

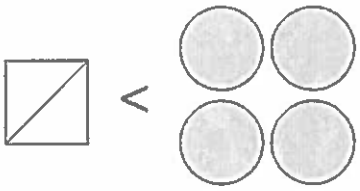
f. 

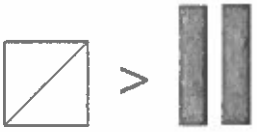
Balance Benders™

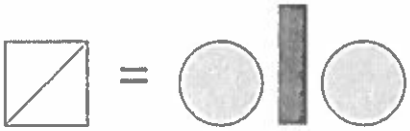




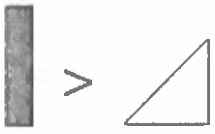
Circle the three answers below that will always be true.

a. 

d. 

b. 

e. 

c. 

f. 

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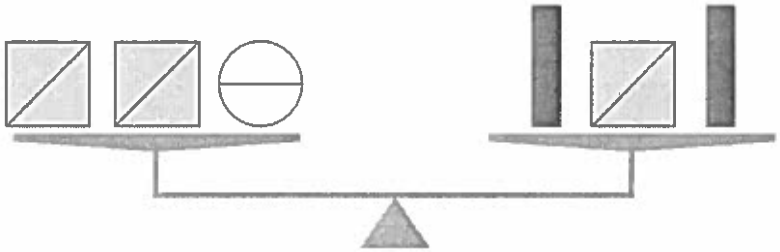
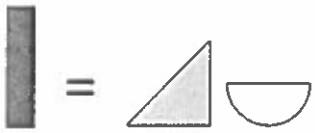
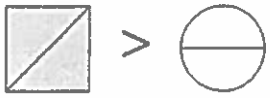
Balance Benders™

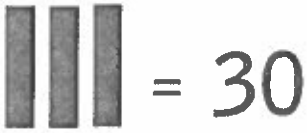


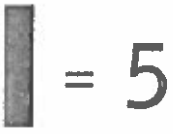
Circle the three answers below that will always be true.

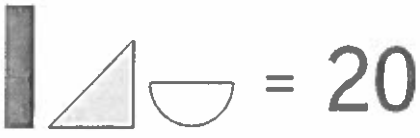
a. 

b. 

c. 

d. 

e. 

f. 

Balance Benders™

Circle the three answers below that will always be true.

a. □ □ □ > ●

b. ● ● = 40

c. □ □ □ = 25

d. ● ▬ = 15

e. □ ▬ ◺ < ●

f. ● □ □ = 30

Have an Ice Day!

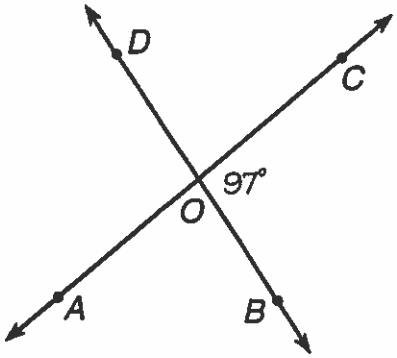
1 What do you call identical twin sisters when both are ice skating champions?

141°	48°	42°	44°	33°	129°	42°	42°	26°	69°	48°	72°	83°	26°	42°	70°

2 What unfortunate mistake did the champion ice skater make with his gold medal?

57°	42°	136°	57°	135°	46°	122°	141°	97°	28°	62°	147°	83°	26°	39°	42°	46°

Use the given angle measures to find the angle measures indicated for each figure. Each time your answer appears in the code, write the letter of the exercise above it.

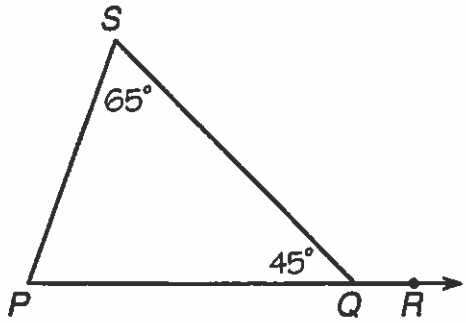


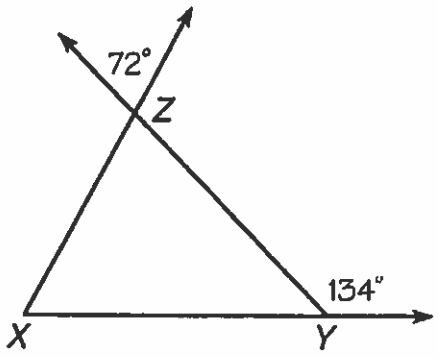
T $m\angle AOD =$

O $m\angle AOB =$

A $m\angle SQR =$

S $m\angle P =$





L $m\angle XZY =$

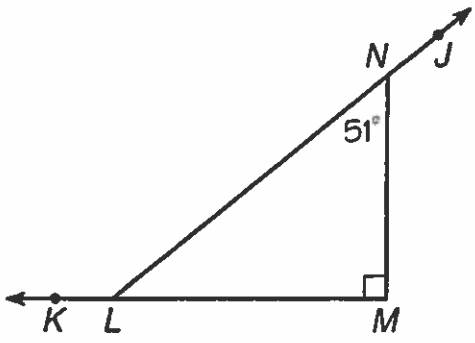
D $m\angle ZYX =$

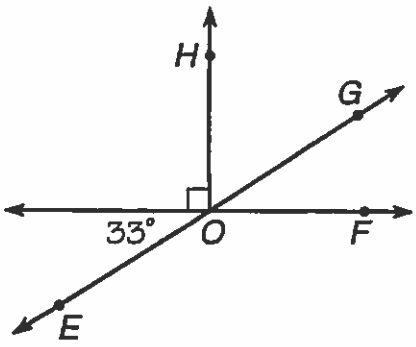
B $m\angle X =$

U $m\angle JNM =$

Z $m\angle NLM =$

I $m\angle NLK =$





9 $m\angle FOG =$

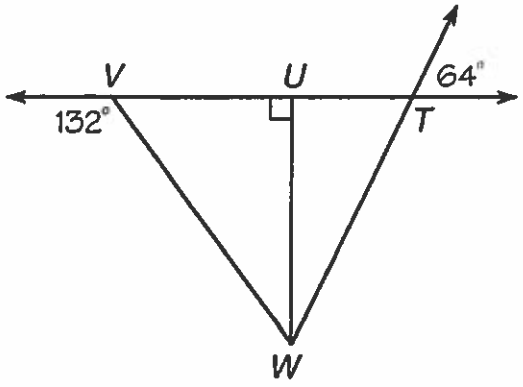
H $m\angle GOH =$

R $m\angle EOF =$

C $m\angle UVW =$

E $m\angle VWU =$

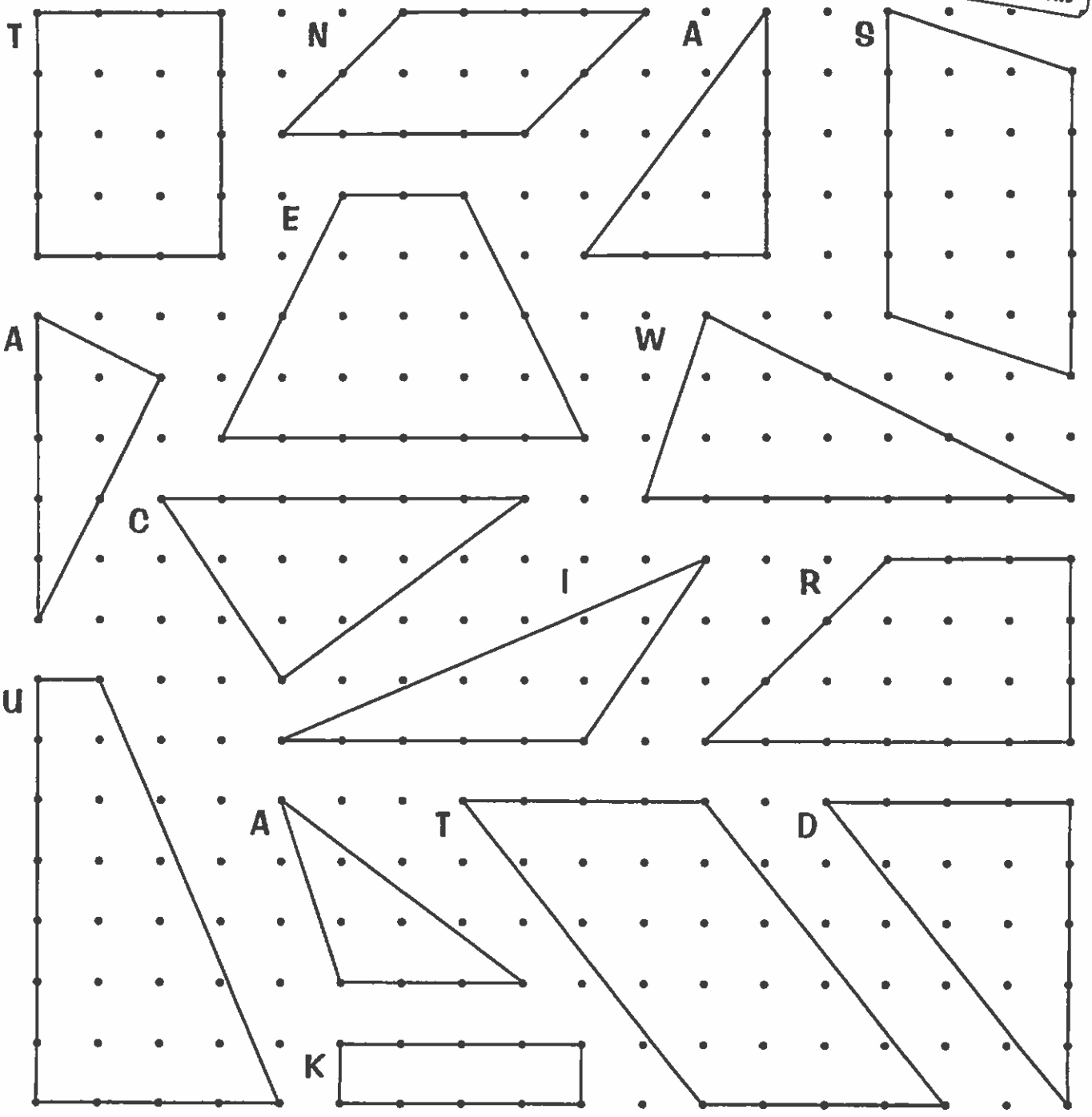
N $m\angle UWT =$



Why Did the Bulletin Board Notice Feel Nervous?

Find the area of each figure (dots are 1 cm apart). Write the letter of the figure above its area in the boxes at the bottom of the page.

Do your homework! Love, Mom



7.5 cm^2	12 cm^2	21 cm^2	10.5 cm^2	4.5 cm^2	15 cm^2	14 cm^2	17.5 cm^2	8 cm^2	10 cm^2	16 cm^2	13.5 cm^2	5.5 cm^2	5 cm^2	9.5 cm^2	20 cm^2	6 cm^2	9 cm^2	4 cm^2

Why Are Broken Clocks So Quiet?

Cross out the box containing each correct answer. When you finish, write the letters from the remaining boxes in the spaces at the bottom of the page.

① $\frac{2}{3} = \frac{\quad}{12}$
$+\ \frac{1}{4} = \frac{\quad}{12}$

② $\frac{2}{5} = \frac{\quad}{15}$
$+\ \frac{1}{3} = \frac{\quad}{15}$

③ $\frac{1}{2} = \frac{\quad}{8}$
$+\ \frac{3}{8} = \frac{\quad}{8}$

④ $\frac{2}{3} = \frac{\quad}{6}$
$+\ \frac{1}{2} = \frac{\quad}{6}$

⑤ $\frac{1}{2} = \frac{\quad}{10}$
$+\ \frac{4}{5} = \frac{\quad}{10}$

⑥ $\frac{3}{4} = \frac{\quad}{8}$
$+\ \frac{5}{8} = \frac{\quad}{8}$

⑦ $\frac{1}{3} = \frac{\quad}{6}$
$+\ \frac{1}{6} = \frac{\quad}{6}$

⑧ $\frac{3}{5} = \frac{\quad}{20}$
$+\ \frac{1}{4} = \frac{\quad}{20}$

⑨ $\frac{5}{6} = \frac{\quad}{18}$
$+\ \frac{4}{9} = \frac{\quad}{18}$

⑩ $\frac{2}{3} = \frac{\quad}{24}$
$+\ \frac{3}{8} = \frac{\quad}{24}$

⑪ $\frac{1}{2} = \frac{\quad}{10}$
$+\ \frac{3}{10} = \frac{\quad}{10}$

⑫ $\frac{3}{4} = \frac{\quad}{12}$
$+\ \frac{5}{6} = \frac{\quad}{12}$

⑬ $\frac{4}{5} = \frac{\quad}{10}$
$+\ \frac{7}{10} = \frac{\quad}{10}$

⑭ $\frac{1}{3} = \frac{\quad}{12}$
$+\ \frac{5}{12} = \frac{\quad}{12}$

⑮ $\frac{7}{8} = \frac{\quad}{24}$
$+\ \frac{5}{6} = \frac{\quad}{24}$

⑯ $\frac{2}{5} = \frac{\quad}{40}$
$+\ \frac{3}{8} = \frac{\quad}{40}$

SO	IT	TH	ET	IM	IF	EY	IX	IT	DO	OR
$1\frac{1}{6}$	$1\frac{17}{24}$	$1\frac{11}{18}$	$1\frac{3}{8}$	$\frac{11}{15}$	$\frac{4}{5}$	$1\frac{1}{12}$	$1\frac{5}{18}$	$\frac{3}{4}$	$1\frac{13}{24}$	$\frac{7}{8}$
BE	NT	IN	TO	AC	AN	LO	CK	UD	TI	ME
$1\frac{1}{2}$	$\frac{13}{20}$	$1\frac{1}{24}$	$\frac{27}{40}$	$\frac{1}{2}$	$\frac{11}{12}$	$\frac{31}{40}$	$1\frac{5}{24}$	$1\frac{7}{12}$	$1\frac{3}{10}$	$\frac{17}{20}$

What Happens If You Watch TV All Day?

For each exercise, write the missing numerator(s). Then compare the fractions. Write > or < in each ◯.

Circle the letter in the corresponding column and write this letter in the box containing the exercise number.

				>	<
1	$\frac{2}{3} = \frac{\quad}{12}$	$\frac{3}{4} = \frac{\quad}{12}$	$\frac{2}{3}$ ◯ $\frac{3}{4}$	R	E
2	$\frac{1}{4} = \frac{\quad}{20}$	$\frac{2}{5} = \frac{\quad}{20}$	$\frac{1}{4}$ ◯ $\frac{2}{5}$	A	O
3	$\frac{5}{6} = \frac{\quad}{18}$	$\frac{7}{9} = \frac{\quad}{18}$	$\frac{5}{6}$ ◯ $\frac{7}{9}$	T	F
4	$\frac{5}{8} = \frac{\quad}{24}$	$\frac{2}{3} = \frac{\quad}{24}$	$\frac{5}{8}$ ◯ $\frac{2}{3}$	V	C
5	$\frac{2}{15} = \frac{\quad}{30}$	$\frac{1}{10} = \frac{\quad}{30}$	$\frac{2}{15}$ ◯ $\frac{1}{10}$	E	N
6	$\frac{3}{4} = \frac{\quad}{16}$		$\frac{3}{4}$ ◯ $\frac{11}{16}$	U	T
7	$\frac{5}{7} = \frac{\quad}{21}$		$\frac{5}{7}$ ◯ $\frac{17}{21}$	B	S
8	$\frac{2}{5} = \frac{\quad}{25}$		$\frac{2}{5}$ ◯ $\frac{9}{25}$	E	A
9	$\frac{7}{8} = \frac{\quad}{16}$		$\frac{7}{8}$ ◯ $\frac{13}{16}$	Y	F
10	$\frac{3}{4} = \frac{\quad}{20}$	$\frac{7}{10} = \frac{\quad}{20}$	$\frac{3}{4}$ ◯ $\frac{7}{10}$	K	H
11	$\frac{3}{8} = \frac{\quad}{24}$	$\frac{5}{12} = \frac{\quad}{24}$	$\frac{3}{8}$ ◯ $\frac{5}{12}$	D	G
12	$\frac{13}{15} = \frac{\quad}{30}$	$\frac{5}{6} = \frac{\quad}{30}$	$\frac{13}{15}$ ◯ $\frac{5}{6}$	I	O
13	$\frac{2}{9} = \frac{\quad}{36}$		$\frac{2}{9}$ ◯ $\frac{7}{36}$	S	L

9	2	6	11	8	3	13	1	5	7	12	4	10

Name_____

Question 34

The mass of a jar is 750 g when it is $\frac{1}{2}$ filled with orange juice. The same jar has a mass of 625 g when it is $\frac{1}{4}$ filled with orange juice.

(a) What is the mass of the jar when it is $\frac{3}{4}$ filled with orange juice?

(b) What is the mass of the jar when it is empty?

Answer: (a) _____

(b) _____

Name _____

Question 55

Isaac and Paul shared some baseball cards in the ratio 2 : 5. If Paul gave 30 cards to Isaac, they would have the same number of cards. How many cards did Isaac have in the beginning?

Answer: _____

Ice Cream

Elmer, Frank, Michelle, Nerissa, and Zora, whose last names are Anderson, Dowden, Garvey, Hinton, and Jones, have favorite ice cream flavors, one to each person. The flavors are butter pecan, chocolate, lemon, strawberry, and vanilla. Read the clues to find each person's full name and favorite flavor of ice cream.

1. Jones and the person whose favorite is butter pecan bought Hinton his favorite ice cream.
2. Anderson and his sister both have the same favorite, which isn't chocolate.
3. Michelle, Garvey, and the girl whose favorite is butter pecan went to the ice cream store with Elmer and Anderson.
4. The girl whose favorite is lemon teased Michelle about having ice cream on her nose.
5. Anderson and the person whose favorite is strawberry walked to the store with Michelle.
6. Zora's favorite is not butter pecan, but she likes it a lot anyway.

	Anderson	Dowden	Garvey	Hinton	Jones	butter pecan	chocolate	lemon	strawberry	vanilla
Elmer										
Frank										
Michelle										
Nerissa										
Zora										
butter pecan										
chocolate										
lemon										
strawberry										
vanilla										

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Playground Games

Charles, Edward, Irene, José, and Patricia, whose last names are Bingman, Darby, Frye, Morgan, and Wilson, each have a favorite game (hide-and-seek, Red Rover, Red Light-Green Light, Simon says, and tag). Read the clues to find each person's full name and favorite game.

1. The boy whose favorite game is hide-and-seek is a year younger than Darby.
2. Patricia likes to play Red Rover almost as much as she likes to play her favorite game.
3. Morgan invited José and Frye to her birthday party.
4. Charles and the boy whose favorite game is Red Light-Green Light got in trouble in school yesterday, and it didn't help their moods any when Frye teased them both about it.
5. Wilson, who doesn't like running games, sometimes walks to school with two of her friends, Charles and Bingman.

	Bingman	Darby	Frye	Morgan	Wilson	hide-and-seek	Red Rover	Red Light-Green Light	Simon says	tag
Charles										
Edward										
Irene										
José										
Patricia										
hide-and-seek										
Red Rover										
Red Light-Green Light										
Simon says										
tag										

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WE'RE LOOKING FORWARD
TO A GREAT YEAR!

~ MS. MUUSSE & MR. VANASSE