Mr. Laws

Grade 6 Mathematics Summer Packet

Algebraic Equations

Tell whether each algebraic equation is correct.
Write true or not true on the line next to each.

1. $a - 6 = 4$, $a = 10$ _____

2. $\dfrac{c}{12} = 2$, $c = 6$ _____

3. $\dfrac{d}{6} = 3$, $d = 18$ _____

4. $8z = 48$, $z = 7$ _____

5. $x + x + 7 = 16$, $x = 4$ _____

6. $\dfrac{30}{5} = h$, $h = 6$ _____

7. $\dfrac{8}{i} = 1$, $i = 8$ _____

8. $13 - z = 8$, $z = 4$ _____

If the algebraic equation shown is true, write true on the line. If the algebraic equation is
not true, cross out the value for the variable and write a new value on the line to make it true.

example: $a - 1 = 6$, $a = \cancel{8}$ _____ $a = 7$ _____

Since this is not true, cross out the 8 and write $a = 7$ on the line.

9. $9 - w = 1$, $w = 9$ _____

10. $\dfrac{p}{2} = 5$, $p = 10$ _____

11. $\dfrac{18}{k} = 2$, $k = 9$ _____

12. $12 + j = 21$, $j = 6$ _____

13. $7a = 28$, $a = 3$ _____

14. $\dfrac{24}{y} = 4$, $y = 8$ _____

15. $\dfrac{36}{6} = b$, $b = 3$ _____

16. $17 - v = 5$, $v = 12$ _____

17. Is the equation in the box to the right always false,
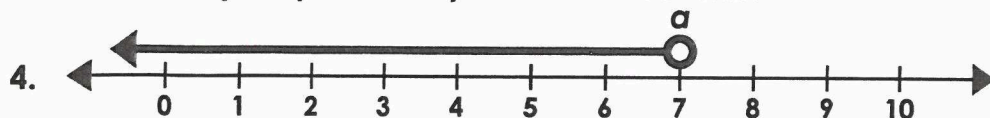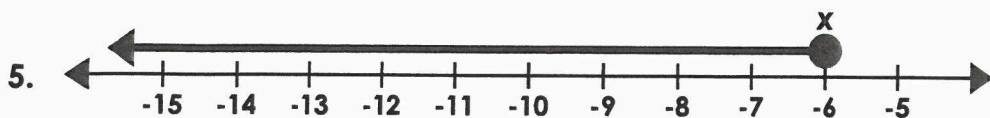no matter what value you give the variable? Explain your answer. $\boxed{0b = 4}$

_____

_____

_____

Name: _____

Introduction to Inequalities

Write the inequality shown by each number line.

4.

a

0 1 2 3 4 5 6 7 8 9 10

answer: _____

5.

x

-15 -14 -13 -12 -11 -10 -9 -8 -7 -6 -5

answer: _____

6.

v

30 31 32 33 34 35 36 37 38 39 40

answer: _____

7.

n

-5 -4 -3 -2 -1 0 1 2 3 4 5
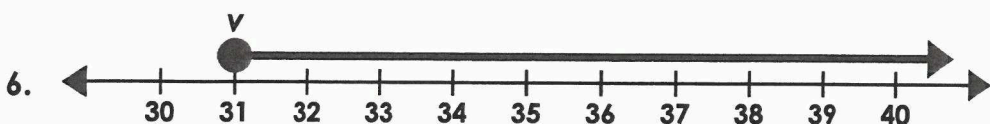
answer: _____

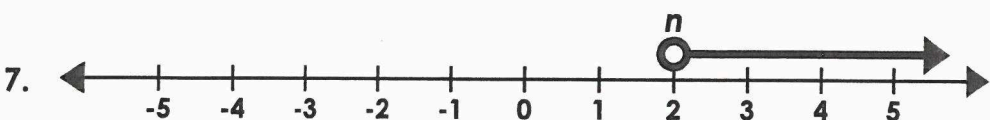**Graph each inequality on the number line using a red colored pencil or crayon.**

8. $b \le 0$

-5   5

9. $14 < f$

10   20

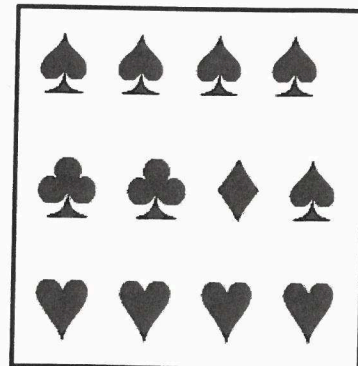10. For the inequality $k > 7$, Chris says 6.5 and 6 are both solutions. Is he correct? Explain why or why not.

_____

_____

11. For the inequality $y \le 9$, Jazmín says 9 and 0 are both solutions. Is she correct? Explain why or why not.

_____

_____

12. Kavya is willing to spend $8 or less on a movie ticket. Show this amount on a number line.

Ratio

a. What is the ratio of clubs to spades? _____

b. What is the ratio of hearts to diamonds? _____

c. What is the ratio of spades and
clubs to hearts and diamonds? _____

d. There are 14 boys and 9 girls in Miss Keller's music class.

What is the ratio of boys to girls? _____

What is the ratio of girls to boys? _____

What is the ratio of boys to students? _____

What is the ratio of girls to students? _____

e. The Elmlawn Golf Shop sells white golf balls and yellow golf balls. 32 out of 100 golf
balls in their store are yellow.

What is the ratio of white golf balls to yellow? _____

What is the ratio of yellow golf balls to white? _____

f. A case of juice was delivered to the corner store. The case contained 6 bottles of
grape juice, 9 bottles of fruit punch, 7 bottles of cranapple juice, and 2 bottles
of raspberry juice.

What is the ratio of cranapple to grape? _____

What is the ratio of grape juice and fruit
punch to the total number of bottles? _____

Converting Fractions, Decimals, and Percents

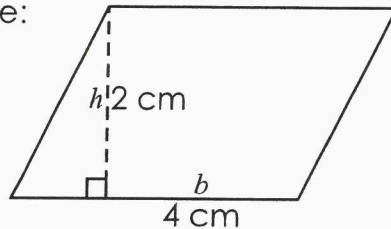|	fraction	decimal	percent
a.	$\dfrac{15}{100}$	.15	
b.	$\dfrac{73}{100}$		73%
c.			39%
d.	$\dfrac{4}{100}$		
e.		.77	
f.			46%
g.	$\dfrac{50}{100}$		
h.		.06	
i.			80%
j.	$\dfrac{26}{100}$		

Name: _____

Area of a Parallelogram

The formula for finding the area of a parallelogram is **Area = base × height**.
This is written as **A = bh**.

Example:

$A = bh$
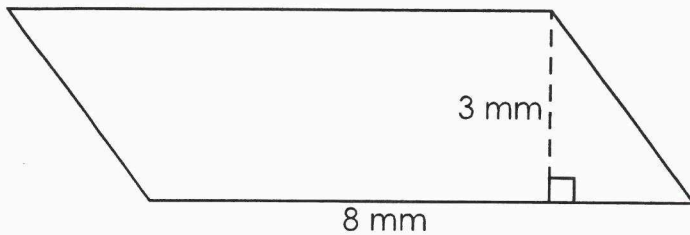
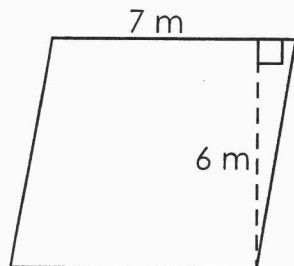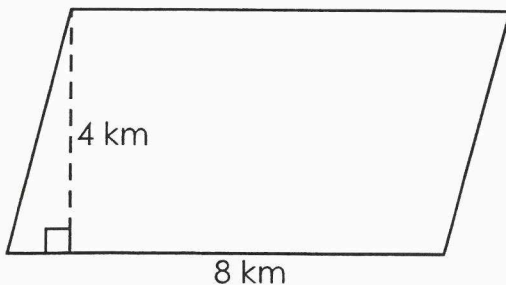$A = 4\ cm(2\ cm)$

$A = 8\ cm^2$

Find the areas of the parallelograms.

3 mm

8 mm

A = _____

7 m

6 m

A = _____

4 km

8 km

A = _____

9 cm

2 cm

A = _____

Name: _____

Greatest Common Factor

When you find all the factors of two or more numbers, and you find some factors are the same ("common"), the largest of those common factors is the **Greatest Common Factor (GCF)**.

What are the factors of 12?	1, 2, 3, 4, 6, and 12
What are the factors of 20?	1, 2, 4, 5, 10, and 20
Which are the common factors?	1, 2, and 4
What is the GCF?	4

1. Find the GCF of 8 and 12.

List the factors of 8. _____   List the factors of 12. _____

List the common factors. _____   What is the GCF? _____

2. Find the GCF of 15 and 20.

List the factors of 15. _____   List the factors of 20. _____

List the common factors. _____   What is the GCF? _____

3. Find the GCF of 21 and 35.

List the factors of 21. _____   List the factors of 35. _____

List the common factors. _____   What is the GCF? _____

4. Find the GCF of 6 and 18.

List the factors of 6. _____   List the factors of 18. _____

List the common factors. _____   What is the GCF? _____

Division with Decimals

Find the quotients.

a. $0.63 \overline{)1.638}$

b. $5.3 \overline{)37.63}$

c. $0.9 \overline{)39.78}$

d. $0.67 \overline{)0.469}$

e. $0.06 \overline{)240}$

f. $0.29 \overline{)0.232}$

g. $6.4 \overline{)77.44}$

h. $0.3 \overline{)15.57}$

Name: _____

Dividing Fractions

Example: $\dfrac{4}{7} \div \dfrac{2}{3} = \dfrac{4}{7} \times \dfrac{3}{2}$ Dividing by a number is the same as multiplying by its reciprocal.

$\llcorner$ reciprocals $\lrcorner$

$\dfrac{4}{7} \times \dfrac{3}{2} = \dfrac{12}{14} = \dfrac{6}{7}$

a. $\dfrac{3}{8} \div \dfrac{4}{5}$

b. $\dfrac{3}{5} \div \dfrac{1}{3}$

c. $\dfrac{4}{9} \div \dfrac{1}{5}$

d. $4 \div \dfrac{6}{7}$

e. $\dfrac{1}{5} \div \dfrac{5}{8}$

f. $\dfrac{3}{5} \div \dfrac{7}{8}$

g. $\dfrac{3}{5} \div \dfrac{2}{3}$

h. $\dfrac{8}{9} \div \dfrac{4}{5}$

i. $\dfrac{7}{9} \div \dfrac{1}{2}$

j. $7 \div \dfrac{7}{8}$

k. $\dfrac{3}{7} \div \dfrac{4}{5}$

l. $\dfrac{2}{3} \div \dfrac{8}{9}$

Evaluate Expressions

Evaluate the following expressions for $x = 6$.

1. $7x$

2. $\dfrac{x}{3}$

3. $29 - x$

4. $\dfrac{36}{x}$

_____   _____   _____   _____

5. $9x$

6. $x + 41$

7. $3x + x$

8. $2x - 2$

_____   _____   _____   _____

Evaluate the following expressions for $b = 2$ and $c = 7$.

9. $5 + b + c$

10. $16 + b - c$

11. $c - b + 1$

12. $9b - c$

_____   _____   _____   _____

13. $7c - b$

14. $4c + b$

15. $12b + c$

16. $22 + b - c$

_____   _____   _____   _____

Evaluate the following expressions for $y = 8$ and $d = 4$.

17. $\dfrac{6y}{d}$

18. $\dfrac{20}{d} + y$

19. $\dfrac{yd}{2}$

20. $\dfrac{y}{d} + 6$

_____   _____   _____   _____

Cootie Catcher
Squares

orange X2

twelve 5^2

five 12^2

red X2

eleven 6^2

25

144

six 11^2

36

121

ten 7^2

49

100

seven 10^2

green X2

64

81

blue X2

nine 8^2

eight 9^2
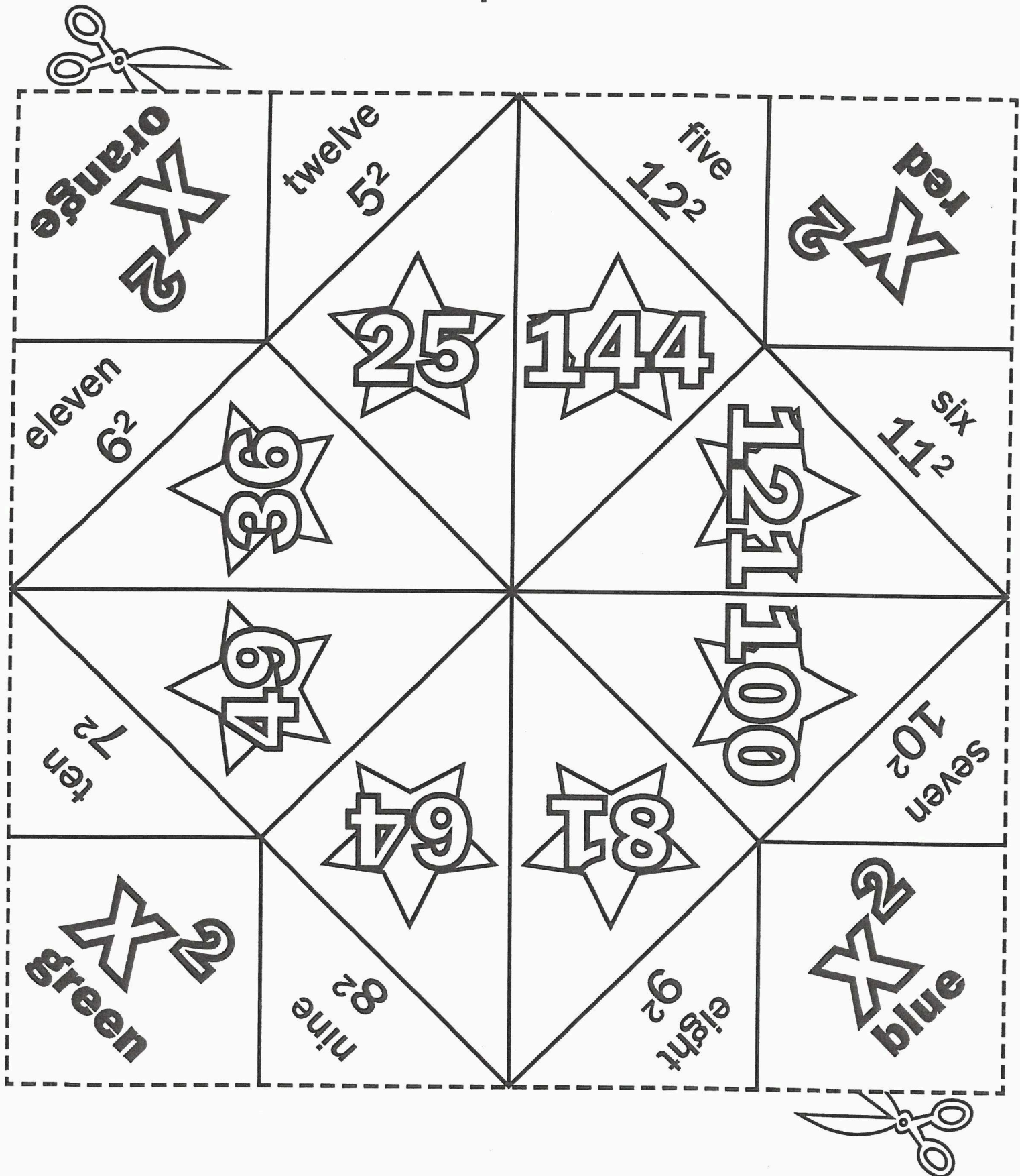
Name: _____

Evaluate Expressions

Evaluate the following expressions for $h = 3$.

1. $4(h + 2)$

2. $\dfrac{18}{h} + h$

3. $h(5 + 2)$

4. $9h - 11$

_____   _____   _____   _____

5. $\dfrac{8h}{12}$

6. $\dfrac{h^2 + 5}{2}$

7. $4(2h - 3)$

8. $5h(6 - 4)$

_____   _____   _____   _____

Evaluate the following expressions for $x = 5$ and $b = 9$.

9. $x(b - 1)$

10. $\dfrac{5b}{x}$

11. $\dfrac{b + x^2}{2}$

12. $b(2 + x)$

_____   _____   _____   _____

13. $7(b - x)$

14. $\dfrac{10x + 4}{b}$

15. $\dfrac{b}{3} + x$

16. $\dfrac{5x + b}{2}$

_____   _____   _____   _____

Evaluate the following expressions for $m = 16$ and $g = 4$.

17. $\dfrac{m}{g} + 9$

18. $g(m - 9) + 5$

19. $\dfrac{m}{2} + 3g$

20. $\dfrac{6g - m}{2}$

_____   _____   _____   _____

Name: _____

Surface Area
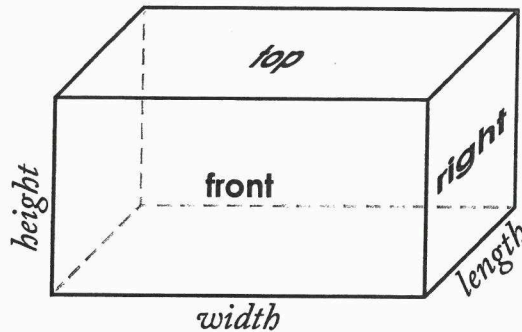
area of **front** = $h \times w$ area of **top** = $w \times l$ area of **right** = $l \times h$

area of **back** = $h \times w$ area of **bottom** = $w \times l$ area of **left** = $l \times h$

area of **front** + **back** = $2(h \times w)$ area of **top** + **bottom** = $2(w \times l)$ area of **right** + **left** = $2(l \times h)$
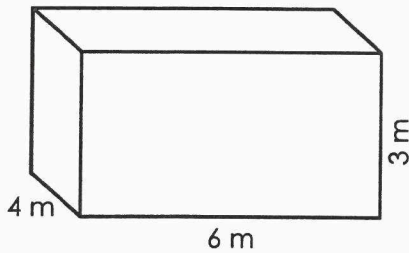
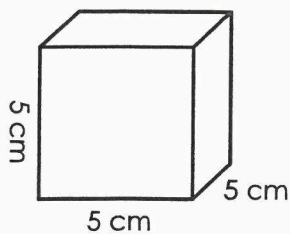$$Surface\ Area = 2(h \times w) + 2(w \times l) + 2(l \times h)$$

Calculate the *Surface Area* (*S.A.*) for each rectangluar prism by using the formula *S.A.* $= 2(h \times w) + 2(w \times l) + 2(l \times h)$.

a.

a. _____

b.

b. _____

c.   *length* = 14 mm

       width = 9 mm

       height = 20 mm

c. _____

Solve each Problem.

Name:

1) During the first 6 hours of the fair there were the following number of customers: 66, 66, 60, 59, 79 and 61. Determine the mean, median, mode and range of the number of customers.

1. _____ __ __ __ __

2. _____ __ __ __ __

3. _____ __ __ __ __

4. _____ __ __ __ __

2) At an ice cream parlor, the owner was tracking the number of chocolate cones he sold over a week. His results were: 81, 75, 75, 75, 62, 62 and 74. Determine the mean, median, mode and range of the cones sold.

5. _____ __ __ __ __

3) Rachel's team played 8 games of basketball. During those 8 games her team's score was: 62, 61, 62, 63, 55, 64, 66 and 56. Determine the mean, median, mode and range of the scores.

4) Carol was doing a classroom survey. She asked the girls in the class how many siblings they had and recorded the results: 15, 6, 6, 3, 3, 4, 6, 7 and 4. Determine the mean, median, mode and range of the results.

5) At Oliver's Pizza Palace in the 6 hours they were open they sold the following number of pizzas: 81 pepperoni, 80 sausage, 81 cheese, 71 mushroom, 85 anchovies and 89 pineapple. Determine the mean, median, mode and range of the number of pizzas sold.