

Name: _____



Unit 2: Here come the Letters! Expressions and Equations

- I can solve multi-step linear equations in one variable using equivalent equations.
- I can distinguish between equations that have one solution, no solution, or multiple solutions.
- I can solve linear equations with the same variable on both sides of the equal sign.
- I can solve multi-step linear equations in one variable that include rational number coefficients, distributive property, and collecting like terms.
- I can write equations from verbal descriptions and solve.
- I can express the solution to a square root or cube root equation in radical form.

#	Date	Assignment	Done (0,1,2)	Points Possible	# Wrong	A NP	P N
1.							
2.							
3.							
4.							
5.							
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7.							
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9.							
10.							
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25.						
26.						
27.						
28.						
29.						
30.						

Name: _____
8th Homework # _____

Variable Jobs

VARIABLES: Understanding the Basis of Algebra:

A **variable** is a letter or symbol used to represent an unknown number. A variable can assume many values, can be assigned a specific value, or can be determined to be a specific value using equation solving techniques. The context in which a variable is used will help determine which of these three options the variable is performing.

1. **ASSIGNED VALUE OF VARIABLE:** An **expression** is a combination of numbers, variables, and operations. To **evaluate** an expression means to substitute a specified value for each variable and simplify the expression according to order of operations. The **variable expression** $12d$ represents *12 times d*.

- a. Evaluate each of the following expressions when $x = 5$. Show all work in steps.
- $8 - x$
 - $2x + 7$
 - $3x^2 + 4x$
- b. Evaluate each of the following expression for $x=3$ and $y =6$. Remember PEMD!
- $3x + 4y$
 - $5x^3 - 3y^2$
- c. Write a variable expression for each phrase.
- The price p plus the sales tax s
 - The Jones' pay \$400 per month rent. How much do they pay in m months?
 - There are 24 hours per day. How many hours are there in d days?
 - Tickets for adults cost \$25 and tickets for children costs \$15. What is the total revenue for x adults and y children?

OVER

2. **VARIABLE ASSUMES MANY VALUES:** Formulas represent an example of variables taking on many values. Formulas express a true relationship between variables. Plug the values in and simplify, if possible.

a. The formula for the perimeter (P) of a rectangle is $P=2W + 2L$, where W is the width and L is the length. If you have a rectangle that is 8 feet wide and 16 feet long, what is its perimeter? Plug in the appropriate values and simplify.

b. Find the perimeter of a rectangle that is 2.5 ft by 3 ft.

c. Find the perimeter of a rectangle that is 5.2 cm by 68 mm.

d. The formula for the surface area of a cube is $S = 6s^2$ where s is the length of a side. Find the surface area of a cube whose side length is 5 in.

e. Find the surface area of a cube with side length 8 cm.

3. **DETERMINE VALUE OF VARIABLE:** An **equation** is a mathematical sentence created by two equivalent expressions, numerical or variable. To **solve** an equation means to find the value of the variable that makes the equation true. This value is called the **solution**.

a. Use mental math to solve each equation. Remember to write $x =$ (solution)

i. $x + 5 = 12$

iii. $3x = 15$

ii. $8 - y = 10$

iv. $x/4 = 16$

b. Is each given number a solution to the equation?

i. Is 2 a solution to $3x + 8 = 14$?

ii. Is 3 a solution to $4 + 3x = 5$?

iii. Is $x=2$ and $y=3$ a solution to $2x + 3y = 13$?

Variable Translations

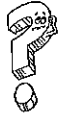
Name: _____
Homework # _____

Directions: For each statement below, translate the English phrase into an algebraic expression. Choose any variable(s) you wish. Watch out for multiple variables!

1. A number increased by 5
2. 25 decreased by a number
3. The sum of a number and 23
4. The product of two different numbers
5. The quotient of 8 and a number
6. Three times a number decreased by 7
7. A number plus 5, times that same number
8. Twice a number, minus 3 times another number
9. The difference between a number and 8, times another number
10. The sum of the number of quarters and nickels in your pocket
11. The quotient of a number plus 3, and another number minus 7
12. The product of a number and the sum of 6 and another number
13. Five times the sum of a number and 8, plus another number
14. The quotient of a number increased by 2 and another number decreased by 8
15. The product of three consecutive numbers (in a row like 1,2,3)



Solving by Substitution



How do you catch a unique rabbit?

► Evaluate the expressions using $n = 3$, $c = 4$, and $x = 5$. Write the letter above its answer.

U. x^2

E. $\frac{nc}{6}$

N. $5c - 7n$

H. $\frac{77}{n + c}$

I. $8(n - x)$

L. $6(n + c)$

U. $2cx$

P. n^3

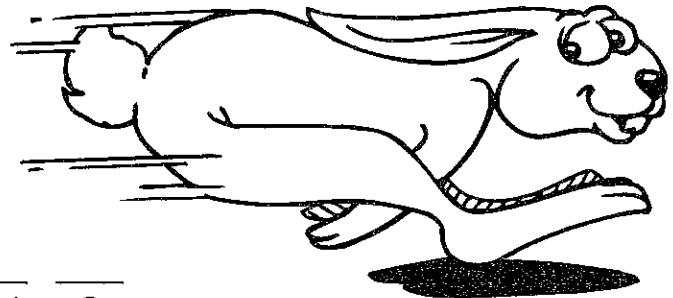
U. $\frac{29 - n^2}{x}$

N. $c^2 + x$

M. $10n \div 2x$

O. $-x(7 + c)$

Q. $\frac{n^2 - x^2}{c}$



40 21 42 -4 4 2

25 27 -55 -1 11 -16 3



How do you catch a tame rabbit?

► Follow the directions above using $y = -6$, $a = -5$, and $m = 2$.

A. $\frac{ya}{m}$

A. $m(y + a)$

E. $3y + 11$

Y. y^m

E. $8(a - y)$

T. $a^2 + 2y$

H. $\frac{-77}{y + a}$

W. $3m^4$

T. $\frac{-9am}{y}$

M. $\frac{120}{ya}$

-15 7 -7 13 15 4 8 48 -22 36

4

TRUE EXPRESSIONS

$4w < c + b!$

This sentence makes sense to the shoppers. Just look at the list of camping goods, and it will make sense to you, too.

It's an expression that uses numbers instead of words to tell you something.

In this case, it tells you that the price of four water bottles is less than the cost of a cook stove plus a pair of boots.

Is the above expression true? _____
You can tell by using the sale poster to find the money value of each letter (variable) in the expression.

SALE!!!

CAMPING SUPPLIES

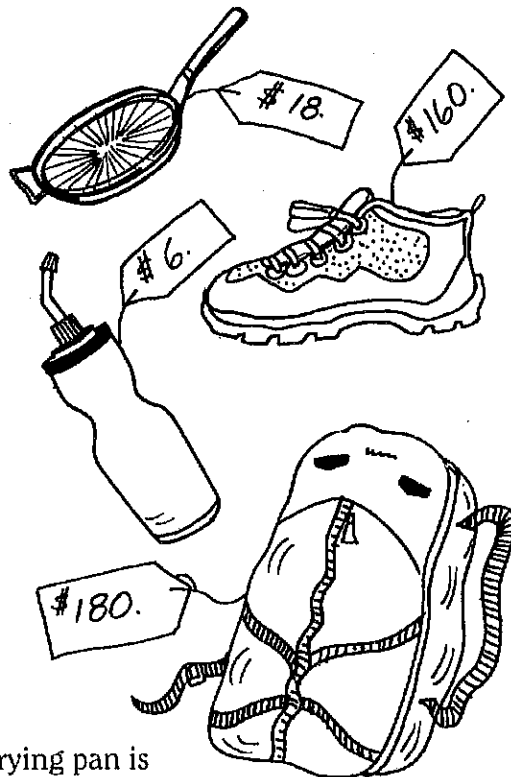
t	tents	
s	sleeping bags	\$ 200
b	boots	\$ 180
p	packs	\$ 160
c	cook stoves	\$ 240
f	frying pans	\$ 32
w	water bottles	\$ 18
		\$ 6

Circle the expression that is true.

$t < 2s$ $s > 2t$ $2s = t$

Find the mathematical expression to match each group of words below.

- cost of three water bottles and two packs
 $3w + 2p$ $3(w + p)$ $3w \times 2p$
- cost of four frying pans and one sleeping bag
 $4(f + s)$ $4f + 4s$ $4f + s$
- ten dollars more than two cook stoves
 $c + 2s + 10$ $10 - 2c$ $2c + 10$
- cost of a pair of boots less three dollars
 $3b + 3$ $3b$ $b - 3$ $b + 3$
- cost of a frying pan is less than two tents
 $f > t$ $2f < 2t$ $2f < 2t$ $f < 2t$
- three times the cost of a pack and boots
 $3p + b$ $3(p + b)$ $3p \times 3b$
- two dollars more than five water bottles
 $(5-2)w$ $5w + b$ $5w + 2$
- the cost of a cook stove, two water bottles, and a frying pan is less than one hundred dollars
 $c + 2w + f < 100$ $100 - 2(c + w + f)$



Name _____

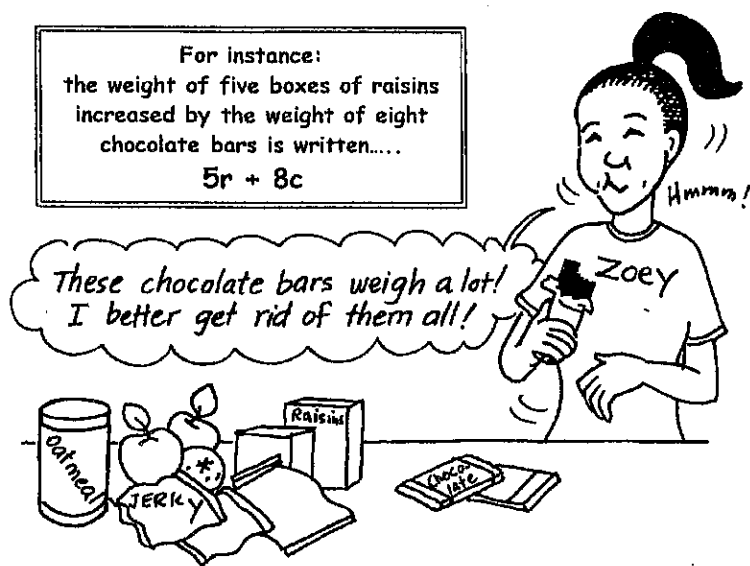
5

over

EXPRESSIONS WITH TASTE

No hiker wants a back-breaking pack, so it's important to pay attention to weight while the supplies are gathered for the pack. These food items have weights (in ounces) that are represented by letter symbols.

For instance:
the weight of five boxes of raisins
increased by the weight of eight
chocolate bars is written.....
 $5r + 8c$



CAMPING FOOD

weight in ounces	food
<i>m</i>	maple oatmeal
<i>n</i>	noodle packs
<i>s</i>	cans of stew
<i>a</i>	apples
<i>h</i>	hot chocolate packs
<i>r</i>	boxes of raisins
<i>c</i>	chocolate bars
<i>g</i>	bags of gorp
<i>f</i>	fruit leather sticks
<i>b</i>	bread rolls
<i>j</i>	jerky sticks
<i>p</i>	power bars

Use the letter symbols to write mathematical expressions about the food weights.

Write an expression to show the weight of . . .

- 1 bag of oatmeal increased by 3 ounces: _____
- 15 boxes of raisins decreased by 7 jerky sticks: _____
- 4 power bars decreased by 2 packs of noodles: _____
- 12 bags of gorp decreased by 4 bags of gorp: _____
- 8 chocolate bars decreased by 5 ounces: _____
- twice the sum of 2 bread rolls and 6 jerky sticks: _____
- 3 times the difference between 2 stew cans and 5 fruit leather sticks: _____
- 10 hot chocolate packets increased by 1 stew can and 2 power bars: _____
- 2 apples weigh less than 3 power bars: _____
- 5 times the weight of a bread roll and an apple: _____
- the sum of $\frac{1}{2}$ bag of raisins and $\frac{1}{4}$ bag of gorp: _____
- ten times the product of bread and fruit leather: _____

Name _____

6

Activity C

2.7 Investigating the Distributive Property

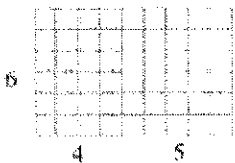
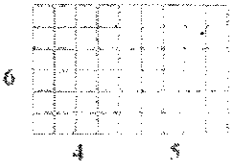
MATERIALS • labsheet

QUESTION How can you use the distributive property to find the area of a rectangle?

EXPLORE Use the distributive property.

STEP 1 Find the areas of the figures on your labsheet

You will work with a partner. One Student should use Method 1 to find the areas of the figures and the other student should use Method 2. Once you have decided which method you will use and which method your partner will use, find and record the areas of the figures on your labsheet.

METHOD 1	METHOD 2
	
<p>Method: Find the area (in square units) of the entire rectangle by finding the area of the shaded rectangle and adding it to the area of the unshaded rectangle.</p>	<p>Method: Find the area (in square units) of the entire rectangle using the area formula.</p>

STEP 2 Compare Areas

Once you have completed the labsheet, compare the areas you found with the areas your partner found. What do you notice?

DRAW CONCLUSIONS Use your observations to complete these exercises.

- Use both Method 1 and Method 2 from the Explore section to write an expression for the area of the figure below.



- What can you say about the expressions you wrote in Exercise 1?
- What can you do to the expression you wrote in Exercise 1 using Method 2 to get it to look like

7

the expression you wrote in Exercise 1 using Method 1?

In Exercises 4–9, match the expression with an expression that has the same value.

4. $3(5 - 12)$

A. $2x + 20$

5. $-6(7 + 3)$

B. -60

6. $2(x + 10)$

C. $8x + 16$

7. $8(x + 2)$

D. $3(5) - 3(12)$

8. $4(2x + 3)$

E. $7(9) - 7(3)$

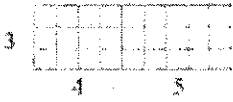
9. $7(9 - 3)$

F. $8x + 12$

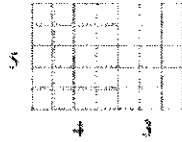
10. Write an expression that is equivalent to $-3(4x + 2)$.

Labsheet

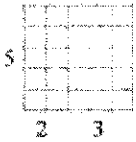
1. Area = _____ square units



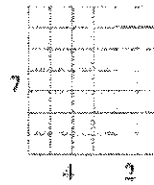
2. Area = _____ square units



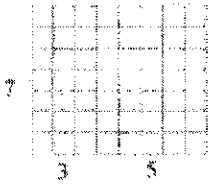
3. Area = _____ square units



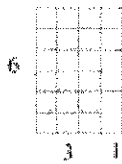
4. Area = _____ square units



5. Area = _____ square units



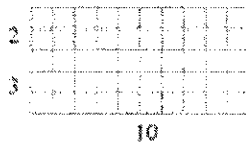
6. Area = _____ square units



7. Area = _____ square units

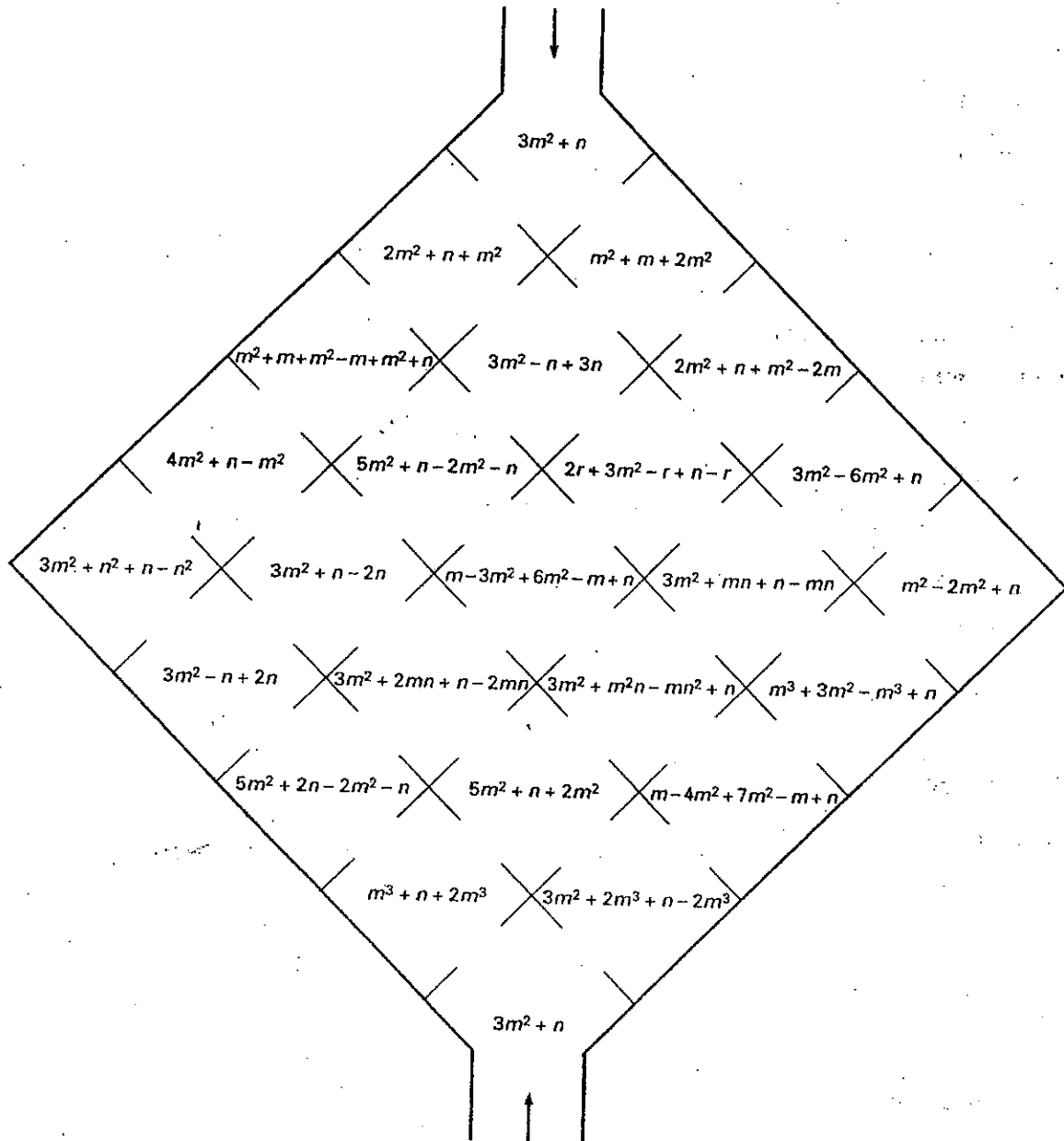


8. Area = _____ square units



A-MAZE-ing!

Can you combine like terms? Find your way from the top of the maze to the bottom by moving to a square containing an expression that is equivalent to the expression in the first square and the last.



Combining Like Terms

Name _____

Date _____ Period _____

Simplify by combining like terms.

1. $2a + 15a + 3a$

20a

2. $7x + 19x + 13x$

3. $5y - 13y + 10y$

4. $6c - 22c + 12c$

5. $35x + 55x + 4$

6. $37y + 10 + 15y$

7. $26ab + 14ab$

8. $12mn + 25mn$

9. $3abc - 22abc$

10. $15rst - 33rst$

11. $7a + 6c + 9a - 15c$

12. $14x + 7y - 19x + 15y$

13. $6c - 9c + 5 + 10c$

14. $7r + 8 + 10r - 19r$

15. $21x + 14 - 15x + 22$

16. $35n + 41 - 19n + 35$

17. $3xy + 3x - 5xy + 4x$

18. $9bc + 10c - 21c + 13bc$

19. $4x^2y + 2x^2y - 5x^2y$

20. $8x^3 - 7x^3 + 16x^3$

21. $15x^2y - 7x^2y + 3$

22. $-14a^2b + 25a^2b - 7$

23. $4x^2 + 2x - 3x^2 + 4x$

24. $5m^3 + 2m^2 - 7m^3 - 8m$

25. $7xy + 4yz - 10yz$

26. $23rs + 11st - 25st$

27. $7x^2 + 2xy - 7xy + 4y^2$

28. $a^2 + 7ab - 10ab + b^2$

29. $-4a^2b + 7 + 10a^2b$

30. $15c^3d + 18c^3d - 9$

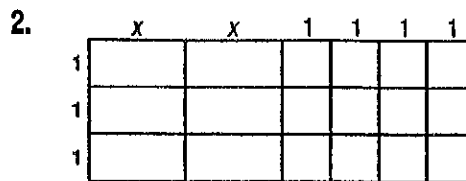
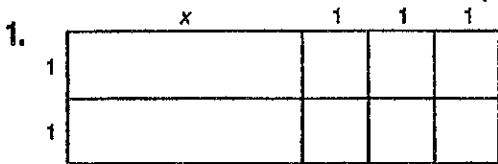
31. $8x^2 - 14x + 10x^2$

32. $9y^3 - 18y^2 + 16y^2$



Name: _____

In Exercises 1 and 2, write the dimensions of the rectangle and an expression for its area. Then use the Distributive Property to rewrite the expression.



In Exercises 3 and 4, use the Distributive Property to write an equivalent expression. Illustrate your result with an algebraic tile sketch.

3. $3(x + 1)$

4. $5(4x + 2)$

In Exercises 5–16, use the Distributive Property to rewrite the expression.

5. $2(3 + 5)$

6. $12(4 + 7)$

7. $3(x + 2)$

8. $15(y + 4)$

9. $4(z + 3)$

10. $8(2 + p)$

11. $x(y + 3)$

12. $a(c + 4)$

13. $2(x + y + z)$

14. $z(a + 4 + b)$

15. $f(g + 3 + h)$

16. $10(2 + y + z)$

In Exercises 17–19, use a calculator to evaluate the expression two ways.

17. $4(2.5 + 5.2)$

18. $12(6.25 + 7.01)$

19. $575(10.2 + 25.02)$

In Exercises 1–9, simplify the expression.

1. $3x + x$

2. $4y + 5y$

3. $2z + 6z + 10$

4. $3a + 5b + 6a$

5. $3z + 7 + 6z + 2$

6. $15z + 5 + 6z$

7. $3s + 2t + 8s + 4$

8. $12x + 3y + 4 + 6y$

9. $6x + 2 + 4x + 9$

In Exercises 10–18, simplify the expression.

10. $4a + 6a + 2a^2$

11. $5z + 2z + 6z^2$

12. $x^3 + 2x^2 + x^3$

13. $3(y + 2) + 6y$

14. $8(z + 1) + 2(z + 4)$

15. $6(st + 2) + 4st$

16. $3(x + z) + 4(z + 2)$

17. $4(x + 2) + 3(y + 6)$

18. $a(b + 2) + 3ab + 4$

In Exercises 19–24, simplify the expression. Then evaluate when $x = 3$ and $y = 4$.

19. $3x + 2y + 6x$

20. $y + 2(y + 2)$

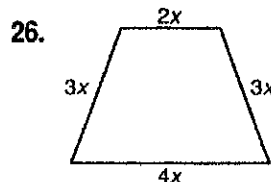
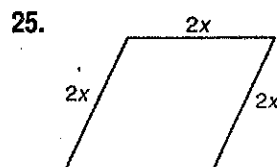
21. $5(x + y) + 2x$

22. $(3 + x)y + x^2$

23. $xy + x^2 + x^2$

24. $3(x + y) + 2(x + y)$

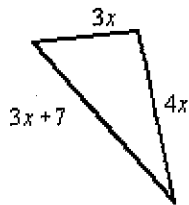
In Exercises 25 and 26, write an expression for the perimeter. Find the perimeter when x is 1, 2, 3, 4 and 5. Represent your results with a table. Then describe the pattern.



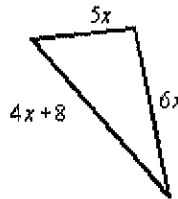
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 Homework # _____

Geometry Expressions

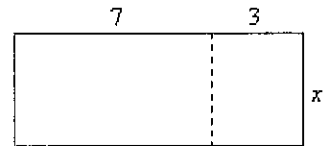
1. For each figure below, write a variable expression for the perimeter of the shape. Combine like terms as necessary.



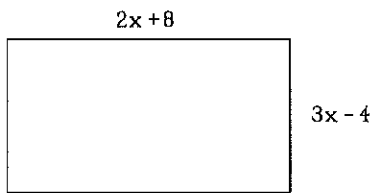
a.



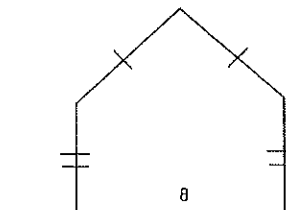
b.



c.



d.

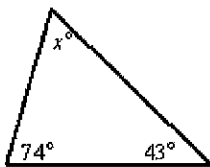


e.

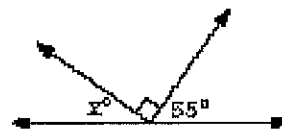


f.

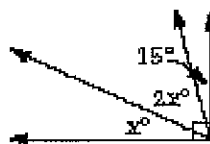
2. For each figure below, write a variable equation for the sum of the angles. Combine like terms but do not solve.



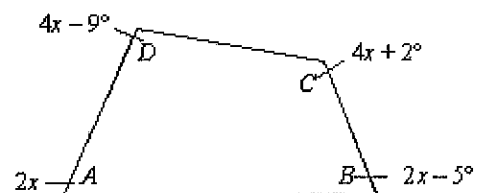
a.



b.



c.



d.

3. Draw a geometric picture that fits each description below.

a. Draw a triangle with side length x , $x+2$, and $x+3$. Find the perimeter.

b. Draw a triangle with two congruent sides and a third side 4 more than the other two. Find the perimeter.

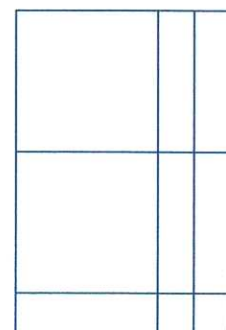
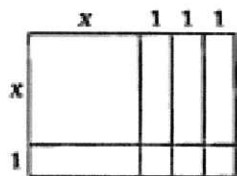
c. Draw a triangle with perimeter $3x+10$. Label each side length.

d. Draw a parallelogram with side lengths $x+2$ and $2x+5$. Find the perimeter.

e. Draw a hexagon with side lengths x , $x+2$, $x+2$, x , $x+2$, $x+2$. Find the perimeter.

4. Use your knowledge of algebra tiles to give the length, width, perimeter, and area of each rectangle.

Find:	Rectangle 1	Rectangle 2	Rectangle 3
Length			
Width			
Perimeter			
Area			



The Meaning of an Equal Sign

Fill in the following definitions:

1. Expression
2. Equation
3. Solution

Evaluate the following expressions when $x = -2$. Start with parentheses!

4. $2x + 4$

5. $-3x + 2 + 4x$

6. $3(x+5) - 8$

Solutions to an Equation:

7. Consider the following equation: $2x+4 = -3x + 2 + 4x$. Is $x=-2$ a solution to this equation? Use your calculations in #4 and #5 to explain why or why not.
8. Use the following chart to find the solution to the equation. Evaluate each side of the equation separately until a match is found. Show your work.

Value of X	$2x+4$	$-3x+2+4x$
3		
2		
1		
0		
-1		
-2		
-3		

9. What is the solution to the equation $2x+4 = -3x + 2 + 4x$? How did the table help you find this solution?

10. Consider the following equation: $2x+4 = 3(x+5) - 8$. Is $x=-2$ a solution to this equation? Use your calculations on #4 and #6 to explain why or why not.

11. Use the following chart to find the solution to the equation. Evaluate each side of the equation separately until a match is found.

Value of X	$2x+4$	$3(x+5)-8$
3		
2		
1		
0		
-1		
-2		
-3		

12. What is the solution to the equation $2x+4 = 3(x+5) - 8$? How did the table help you find this solution?

Make your own table to find the solution this problem. You may choose to use the distributive property and to combine like terms before starting the table. Find a pattern and fill down after three cells. You may need to extend your table farther.

13. $2(x+3) - 4 = 4(x-2) + 20$

Simplified equation:

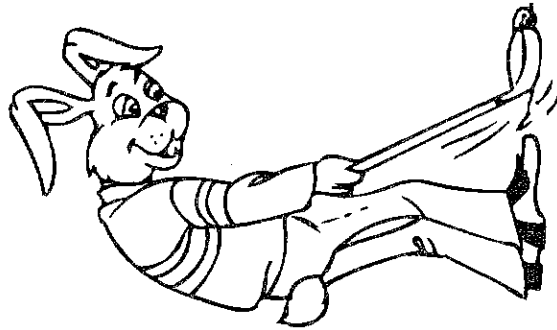
Table:

Name _____ Date _____

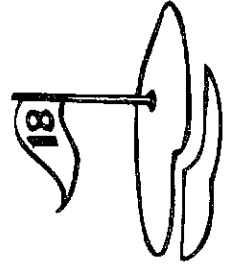


Equations: Checking Solutions

▲ Help Gomer's golf ball get to the 18th hole. Shade the boxes containing correct solutions to the equations.



$39 - c = 12$ $c = 27$	$48 - c = 111$ $c = 59$	$\frac{a}{15} = 5$ $a = 75$	$5x + 15 = 40$ $x = 4$	$20x = 100$ $x = 5$
$36 = 12x$ $x = 3$	$\frac{x}{12} = 12$ $x = 144$	$y + 12 = -19$ $y = -7$	$66 = 11x$ $x = -6$	$\frac{x}{13} = 11$ $c = -169$
$a - 10 = -2$ $a = 8$	$-13 + w = 5$ $w = 8$	$8a = -72$ $a = -9$	$\frac{n}{8} = 7$ $n = -56$	$16 + x = -8$ $x = 24$
$\frac{m}{9} = 7$ $m = 63$	$64 = 7c$ $c = 8$	$99 = 33b$ $b = 3$	$r - 17 = 26$ $r = 44$	$28 + m = 5$ $m = -33$
$7b = -70$ $b = -10$	$19 = 22 + n$ $n = -41$	$6x = 48$ $x = 8$	$\frac{c}{11} = -4$ $c = -44$	$\frac{b}{14} = 3$ $b = 84$
$x - 13 = 5$ $x = 18$	$8 = -15 + b$ $b = -7$	$7a = 49$ $a = 7$	$24 + w = -6$ $w = -30$	$52 = 4y$ $y = 12$
$26 = 4 + y$ $y = 22$	$x - 17 = 3$ $x = 14$	$\frac{m}{4} = 8$ $m = 38$	$y - 14 = -5$ $y = 9$	$5 = x - 8$ $x = 13$
$7b = -28$ $b = 4$	$\frac{x}{5} = 15$ $x = 65$	$29 - a = -14$ $a = 15$	$-11 = r - 40$ $r = -51$	$41 = -5 + c$ $c = 46$





Solving 1-Step Equations



At the Winter Olympics in 1998, the U.S. team won the first Olympic gold medal awarded for which sport?

► Solve these equations. Write the letter above its correct solution below.

H. $-20 = x + 11$

E. $-16 = 23 - x$

I. $-7 = -10 + x$

K. $53 - x = 72$

E. $x - 27 = -4$

M. $12 = 6 - x$

N. $13 = -41 + x$

O. $-16 = -25 - x$

O. $-12x = -120$

C. $\frac{x}{25} = 3$

Y. $-8 = \frac{x}{-2}$

W. $-36x = 4$

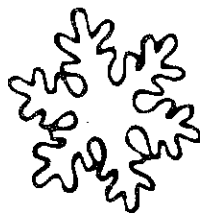
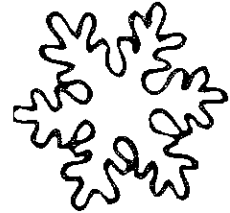
S. $49x = 7$

E. $-5 = \frac{x}{11}$

C. $64x = 12$

$\frac{-1}{9}$ $\frac{10}{10}$ $\frac{-6}{-6}$ $\frac{-55}{55}$ $\frac{54}{54}$ $\frac{1}{7}$ $\frac{3}{3}$ $\frac{75}{75}$ $\frac{23}{23}$

$\frac{-31}{-31}$ $\frac{-9}{-9}$ $\frac{3}{16}$ $\frac{-19}{-19}$ $\frac{39}{39}$ $\frac{16}{16}$




ACTIVITY 32

Name _____

1-06-12-7


-5	-2	-2	2	0	6	-5	-2	-2	2
-6	7	4	-1	10	-15	-6	1	4	-1
-1	5	7	3	-7	-7	-4	7	5	3
2	0	6	-5	-2	-2	2	6	0	-5
-1	17	-18	-6	1	x	-1	-10	15	-6
3	-7	-7	-4	5	7	3	-7	-2	-4
-5	-2	-2	2	8	6	-5	-2	-2	2
-6	7	4	-1	-17	18	-6	1	4	-1
-4	7	5	3	-7	-7	-4	5	7	3
2	8	0	-5	-5	-3	2	0	6	-5

Solve for x.

 $-3 = x + 2$


 $-3x = -6$

 $x - 6 = -3$

 $\frac{x}{-4} = 1$

 $-10 = x - 7$


 $-10 = -2x$


 $8 + x = 7$

 $\frac{12}{x} = -6$

 $\frac{-x}{3} = 2$


 $0 = x - 6$

 $-1 = x - 5$

 $12 + x = 5$

 $4 - x = 3$

 $-5 = x - 5$

 $-3x = -21$

Activity

3.3 Modeling Two-Step Equations

MATERIALS • algebra tiles

QUESTION How can you use algebra tiles to solve two-step equations?

A *two-step equation* is an equation you solve using two operations. You can use algebra tiles to model and solve two-step equations.



x -tile represents the variable x 1-tile represents a positive unit, or 1 -1 -tile represents a negative unit, or -1

EXPLORE 1 Use algebra tiles to model and solve two-step addition equations

STEP 1 Model the equation

Use two x -tiles and ten 1-tiles to model the equation $2x + 3 = 7$. Draw an equal sign on your paper to separate the two halves of the equation. Sketch your model.

STEP 2 Remove 1-tiles

You need to get the x -tiles alone on one side of the equation. How many 1-tiles should you remove from each side so that the two x -tiles are alone on one side of the equation? Remove the tiles. Then sketch the resulting model.

STEP 3 Divide into equal groups

Notice there are two x -tiles and the coefficient of x is 2. So, divide the x -tiles into two equal groups. Divide the 1-tiles on the other side of the equation into two equal groups. Then sketch the resulting model.

STEP 4 Compare sides

Match a group on the left with a group on the right. Complete the statement:

$x =$ _____.

DRAW CONCLUSIONS Use your observations to complete these exercises.

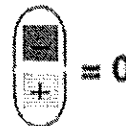
1. Check your solution to Step 4 by substituting your solution in the original equation.

Use algebra tiles to model and solve the equation.

2. $3x + 1 = 7$ 3. $2x + 4 = 10$ 4. $2x + 3 = 5$ 5. $4x + 1 = 9$

EXPLORE 2 Use algebra tiles to model and solve two step subtraction equations

When you combine a 1-tile and a -1 -tile, the result is zero. This pair of tiles is called a *zero pair* and may be removed from the model.



STEP 1 Model the equation

Model the equation $3x - 4 = 5$. Sketch the model and write the equation.

STEP 2 Add 1-tiles

Add four 1-tiles to each side. Then remove zero pairs. Sketch the model and write the equation.

STEP 3 Divide into equal groups

Notice there are 3 x -tiles and the coefficient of x is 3. So, divide the remaining tiles on each side into 3 identical groups by drawing a circle around each group. Sketch the model and write the equation.

STEP 4 Compare sides

Match a group on the left with a group on the right. Complete the statement:

$x = \underline{\hspace{2cm}}$.

DRAW CONCLUSIONS Use your observations to complete these exercises.

Use algebra tiles to model and solve the equation. Write the equation at each step.

6. $3x - 6 = 6$ 7. $2x - 3 = 7$ 8. $4x + 2 = -10$ 9. $2x - 5 = -9$

10. Explain what kinds of equations are difficult or impossible to solve using algebra tiles. Give an example.
11. Use algebra tiles to write a two-step equation whose solution is 1.