Warm–Up

Directions: Evaluate each numerical expression.

1. $7 + 10 \bullet 3 - 6$ _____

2. $18 \div 3 \bullet (4 + 1.5)$ _____

3. $100 \div 5^2 - (10 - 8) + 2\frac{1}{2}$ _____

4. $29 + \{18 \div (2 \bullet 3)\}$ _____

5. $120 - (10 - 8)^2 + 5$ _____

Directions: Complete the following SOLVE problem with your teacher. You will only complete the S step.

Bailey walks dogs for her neighbors. She charges a fee of $10 per week, as well as $3 for every walk. She currently walks eight different dogs. Ms. Walker and her dog, Genevieve, are one of Bailey's customers. Write and use an expression to determine how much Ms. Walker owes Bailey if she walks Genevieve six times this week.

S Underline the question.
This problem is asking me to find _____
_____.

Directions: Complete this page with your teacher and partner.

Writing Expressions – Verbal to Numerical and Variable Expressions

Verbal Expression	Pictorial Representation	Numerical and Variable Expressions
1. Four		
2. Two plus three		
3. Three groups of two		
4. A number		
5. Four plus a number		
6. A number plus three		
7. Four times a number		
8. Two times a number plus three		

Directions: Complete this page with your teacher and partner.

Writing Expressions – Numerical and Variable to Verbal Expressions

Numerical and Variable Expressions	Pictorial Representation	Verbal Expression
1. 3		
2. 1 + 2		
3. 2 • 4		
4. 3 + x		
5. x + 1		
6. 3x		
7. 3x + 1		

Conclusions:

When we write an expression with a value that is not identified we can use a variable which is represented by a _____.

Look at the expression: 9 + 6

What type of expression is this? _____ Explain your answer. _____
_____.

Look at the expression: x – 3

What type of expression is this? _____ Explain your answer. A _____
is any expression that has a _____, and may also have _____.

Directions: Complete this page with your teacher and your partner.

Expressions in real-world situations

1. There are eight yogurt drinks in a package. Write an expression that tells how many yogurt drinks there are if you buy x number of packages.

2. Baxter is an electrician. He charges a fifty dollar fee to come to your house and charges twenty-five dollars an hour. Write an expression to show how much money he charges.

3. A rectangle has a length of 8.5 inches. Write an expression to show how to determine the perimeter if the width is represented by w.

Directions: Use the word bank below to complete the vocabulary chart.

coefficient term variable constant

Vocabulary	Example from Problem 2: $50 + 25h$	Definition
4.		a letter that stands for an unknown value
5.		the numerical term that does not change
6.		the numerical factor in a term that includes a variable
7.		part of an expression that is separated from other parts by addition or subtraction

Directions: Fill in the table below to identify coefficients, terms, constants and variables.

Expression	Coefficients	Terms	Constants	Variables
8. $7m + 8 + x$				
9. $12 - 5n$				
10. $25 + 2p + 12$				

Directions: Complete this page with your partner.

1.	The sum of four plus a number, divided by three	$3 - 4n$
2.	Three times a number plus four	$4n - 3$
3.	Four times a number subtracted from three	$4n + 3$
4.	The sum of four times a number and three	$\frac{4+n}{3}$
5.	The difference of four minus a number, divided by three	$\frac{4-n}{3}$
6.	The difference of four times a number and three	$3n + 4$

Directions: Write the variable or verbal expression.

7.	Write an expression that can be used to determine the area of a rectangle with a length of 9.2 units and an unknown width of w.	
8.	Write an expression to represent the sum of 5 times a number and fourteen.	
9.		$6(2 + n)$
10.	Write an expression to represent how to find the area of square with a side length of s.	
11.		$15 - 4\frac{1}{2}x$

12. Write a real-world situation that can be represented by the expression: $15(x + 10)$

Directions: Complete this page with your teacher and partner.

Evaluating Expressions

1. What does it mean to evaluate a numerical expression?

Evaluate the following expression: $(4 + 5)2 + 6^2$

2. How is evaluating a variable expression different from evaluating a numerical expression?

3. Let's look at the expression from page S250.
There are eight yogurt drinks in a package. Write an expression that tells how many yogurt drinks there are if you buy x number of packages.

4. What did the x stand for?

5. If Tina bought 4 packages of yogurt drinks, how could you evaluate the expression $8x$ to determine how many yogurt drinks that Tina has?

6. In Problem 2 on S250, the expression of $50 + 25h$ represents how much money Baxter charges for his work as an electrician. What if Baxter spent six hours at your home?

How much would you owe him?

Directions: Evaluate the following expressions.

7. Find the value of $6m + 12$ if m is equal to 5.	
8. Find the value of $6m + 12$ if m is equal to 3.2.	
9. Find the value of $7m + 8 + x$ if m is equal to 3 and x is equal to 4.	
10. Find the value of $3x - 5y$ if x is equal to 10 and y is equal to 3.	

Conclusion: When evaluating expressions you need to apply the _____. When you have a term with a coefficient and a variable it represents the operation of _____.

Directions: Complete the following SOLVE problem with your teacher.

Bailey walks dogs for her neighbors. She charges a fee of $10 per week, as well as $3 for every walk. She currently walks eight different dogs. Ms. Walker and her dog, Genevieve, are one of Bailey's customers. Write and use an expression to determine how much Ms. Walker owes Bailey if she walks Genevieve six times this week.

S Underline the question.

This problem is asking me to find _____
_____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

Directions: Complete the following SOLVE problem.

Tom is creating a geometric design for his math project. His design is composed of quadrilaterals, pentagons, and hexagons. As he is creating his design, Tom needs to determine the perimeter of each figure. What expression can Tom use to represent the perimeter of each hexagon?

S Underline the question.

This problem is asking me to find _____
_____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

Directions: Complete the following SOLVE problem.

The sixth-grade students are going on a field trip to the art museum. The cost for each student ticket is $6.00, and each adult ticket costs $12.50. Write an expression that can be used to determine the total cost for the trip.

S Underline the question.

This problem is asking me to find _____ _____.

O Identify the facts.

Eliminate the unnecessary facts.

List the necessary facts.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

Directions: Complete the following SOLVE problem.

Deanna has a cell phone. She pays a fee of $15.00 per month and that pays for 100 texts. After the first 100 text messages, she has to pay 1.5 cents per text. Write an expression and evaluate the expression to determine what her monthly bill was if she had a total of 400 texts last month.

S Underline the question.
This problem is asking me to find _____
_____.

O Identify the facts.
Eliminate the unnecessary facts.
List the necessary facts.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)

Write your answer in a complete sentence.

Directions: Complete the following SOLVE problem.

Stephanie and her family are going out to eat for her sister's birthday. The total cost of the dinner is $48.00. The restaurant charges an additional fee of $12.00 for the birthday cake. Stephanie's dad asks her to figure out the tip for the dinner and cake. Write an expression than can be used to determine the tip. Find the total amount of the meal if Stephanie's dad wants her to use 18% for the tip.

S Underline the question.
This problem is asking me to find _____
_____.

O Identify the facts.
Eliminate the unnecessary facts.
List the necessary facts.

L Write in words what your plan of action will be.

Choose an operation or operations.

V Estimate your answer.

Carry out your plan.

E Does your answer make sense? (Compare your answer to the question.)

Is your answer reasonable? (Compare your answer to the estimate.)

Is your answer accurate? (Check your work.)
Write your answer in a complete sentence.

Directions: Complete this page with your partner.

1. The formula to find the surface area of a cube is $6s^2$, where s stands for the side length of the cube. What is the surface area of the cube if its side length is 10 cm?

2. The distance traveled by a car can be found using the formula $D = st$, where s is the speed of the car and t is the total amount of time traveled. If a car traveled at 55 mph for 4 hours, how far did the car travel?

3. We can use the formula $C = \frac{5}{9}(F - 32)$ to convert a temperature given in degrees Fahrenheit to degrees Celsius. If the temperature is 86° F, what is the temperature in degrees Celsius?

4. The formula $2lw + 2wh + 2hl$ can be used to find the surface area of a rectangular prism, where l is the length, w is the width, and h is the height of the prism. What is the surface area of a rectangular prism that has a length of 7 cm, width of 5 cm, and a height of 6 cm?

5. To find the volume of a cylinder, you use the formula $V = \pi r^2 h$, where π is 3.14, r is the radius of the cylinder, and h is the height of the cylinder. What is the volume of the cylinder if the radius is 8 inches and the height is 12 inches?

Homework

Name _____ **Date** _____

Directions: Write a verbal or algebraic expression for Problems 1 - 4.

1. $3x + 4$

2. $10 \div (x - 2)$

3. Five times the quantity of seven plus a number

4. Twelve divided by a number subtracted from four

5. What is the difference between an algebraic expression and an algebraic equation?

6. Fred is going to a carnival. There is an $8 entrance fee, and rides cost $3 a piece. Write an algebraic expression that will give the amount of money Fred spent if he rode r number of rides.

7. If Fred rode 13 rides, how much money did he spend?

8. Evaluate the following if $x = 7$ and $y = \frac{3}{4}$: $6x + 12y$

9. Evaluate the following if $p = 15$: $500 - p^2$

10. The formula $A = 0.5bh$ will give the area of a triangle. What is the area of the triangle if the base, b, is 18 in. and the height, h, is 20 in.?