

## Bell Work

- Which property allows you to rewrite  $3 + \sqrt{6} + -9 + 2\sqrt{6}$  as  $3 + (-9) + \sqrt{6} + 2\sqrt{6}$ ?
  - Commutative Property of Multiplication
  - Associative Property of Multiplication
  - Commutative Property of Addition
  - Distributive Property
- If  $x = 12$  and  $y = 3$ , what is the value of  $|-x + 5y|$ ?

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## Shuffle & Switch!

Match the trios the previous group constructed.

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## Shuffle & Switch!

- What was your strategy in deciding how to match?
- Did a group member ever change your mind? If so, what made you think of the situation differently?
- Did your group provide feedback to another group?
- What was challenging about this process?
- Is it easier to take a contextualized situation and decontextualize it, or a decontextualized situation and contextualize it?
- What does decontextualized and contextualized mean? Why is this helpful in mathematics?
- Could some of the equations be written in a different way? How so?

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Focus on writing the equation using the structure of the words and the corresponding structure to solve the problem.

### INCLUDED IN THE STUDENT MANUAL

#### Task #2: Equation Problems

- Three girls downloaded a total of 36 songs on their iPods. Jane downloaded twice as many as Inez and since Tracy wanted to have the most, she downloaded one more than Jane did. How many songs did each girl download?
- A checking account is set up with an initial balance of \$4,800, and \$300 is removed from the account each month for rent (no other transactions occur on the account). How many months will it take for the account balance to reach \$1,500?
- Peyton is three years younger than Justin. Matt is four times as old as Peyton. If you add together the ages of Justin, Peyton and Matt, the total comes to 39 years. How old are Justin, Peyton, and Matt?

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# You Explain!

1. Three girls downloaded a total of 36 songs on their iPods. Jane downloaded twice as many as Inez and since Tracy wanted to have the most, she downloaded one more than Jane did. How many songs did each girl download?

$$J + I + T = 36$$

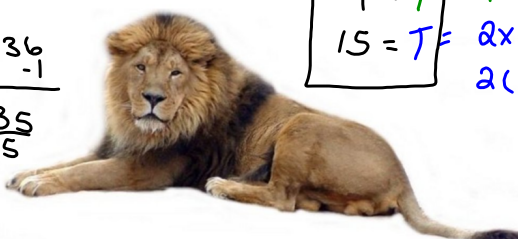
$$2x + x + 2x + 1 = 36$$

$$\begin{array}{r} 5x + 1 = 36 \\ -1 \quad -1 \\ \hline 5x = 35 \\ \frac{5x}{5} = \frac{35}{5} \\ x = 7 \end{array}$$

$$14 = J = 2x = 2(7)$$

$$7 = I = x = (7)$$

$$15 = T = 2x + 1 = 2(7) + 1$$



1. Tracy downloaded 15 songs; Jane 14 songs; and Inez 7 songs.

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# You Explain!

2. A checking account is set up with an initial balance of \$4,800, and \$300 is removed from the account each month for rent (no other transactions occur on the account). How many months will it take for the account balance to reach \$1,500?

$$1500 = 4800 - 300x$$

$$\begin{array}{r} 1500 = 4800 - 300x \\ -4800 \quad -4800 \\ \hline -3300 = -300x \\ \frac{-3300}{-300} = \frac{-300x}{-300} \\ 11 = x \end{array}$$

*it would take 11 months*



2. 11 months.

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# You Explain!

3. Peyton is three years younger than Justin. Matt is four times as old as Peyton. If you add together the ages of Justin, Peyton and Matt, the total comes to 39 years. How old are Justin, Peyton, and Matt?

$$J + P + M = 39$$

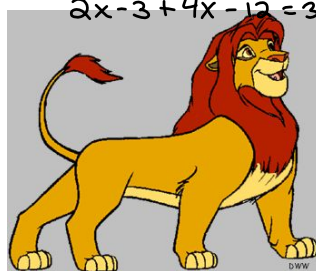
$$x + x - 3 + 4(x - 3) = 39$$

$$2x - 3 + 4x - 12 = 39$$

$$\begin{array}{r} 6x - 15 = 39 \\ +15 \quad +15 \\ \hline 6x = 54 \\ \frac{6x}{6} = \frac{54}{6} \\ x = 9 \end{array}$$

$$J = x = 9 \text{ yrs}$$

$$P = x - 3 = 6 \text{ yrs}$$

$$M = 4(x - 3) = 24 \text{ yrs}$$


Peyton is six; Justin is nine; and Matt is 24.

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**Task #3: Gasoline Cost**

You have \$40 to spend on  $n$  gallons of gas that costs \$3.25 per gallon. Determine whether each of the following is an expression or an equation. Using the structure, give an interpretation of the practical meaning of each.

- Ex 1.  $3.25n$
- Eq 2.  $3.25n = 26$
- Ex 3.  $40 - 3.25n$
- Eq 4.  $40 - 3.25n = 1.00$

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**Task #3: Gasoline Cost**

You have \$40 to spend on  $n$  gallons of gas that costs \$3.25 per gallon. Determine whether each of the following is an expression or an equation. Using the structure, give an interpretation of the practical meaning of each.

1.  $3.25n$
2.  $3.25n = 26$
3.  $40 - 3.25n$
4.  $40 - 3.25n = 1.00$

**Answers:**

1. This is an expression that represents how much it will cost to buy  $n$  gallons of gas.
2. This is an equation whose solution represents the number of gallons you can buy for \$26.
3. This is an expression that represents the amount of money you will have left after buying  $n$  gallons of gas.
4. This is an equation that represents the amount of gas you bought if you received \$1 back in change.

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**Task #4: Equations and Solutions**

For each of the equations below, determine whether the given value is a solution or not.

1.  $x + 2 = x^2 + 4$  at  $x = 2$
2.  $p + 2 = p^2 - 4$  at  $p = -2$
3.  $\frac{a-5}{a+5} = 1$  at  $a = 0$
4.  $\frac{5-a}{5+a} = -1$  at  $a = 0$
5.  $3(x - 8) = 3x - 8$  at  $x = 0$
6. Which, out of the numbers 0, 1, -1, 2, -2, is/are solution(s) to the equation  $4x^2 - 4x - 5 = 2x(x+3) - 1$ ?

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