

Unit 2 – Investigation 1

Class Goals – By the end of the period, you will understand and be able to...

- Apply the Order of Operations to Evaluate Numeric and Algebraic Expressions.
- Solve a One-Step Equation.

Warm-Up Exercises

1. Pick any number. _____
2. Take the number you picked and double it. _____
3. Add 10. _____
4. Divide the new number by 2. _____
5. Subtract your original number. _____

What do you notice? Can you explain why that happened? Explain.

1. Write the number of the month in which you were born. _____
2. Multiply that number by 5. _____
3. Add 6 to that number. _____
4. Multiply the sum by 4. _____
5. Add 9. _____
6. Multiply the sum by 5. _____
7. Add the number of the day you were born. _____
8. Subtract 165. _____

What do you notice? Can you explain why that happened? Explain.

For evaluating expressions, write down the order of operations.

Parentheses
Exponents
Multiplication/Division } Left to Right
Addition/Subtraction

Example #1 Evaluate the expression.

a. $15 - 6 + 11$
 $9 + 11 = 20$

b. $12 \div 6 \cdot 2$
 $2 \cdot 2 = 4$

c. $\frac{3^2 + 4 \cdot 6 - 2}{12 - 7 \cdot 2 + 7} = \frac{9 + 4 \cdot 6 - 2}{12 - 7 \cdot 2 + 7}$
 $\frac{9 + 24 - 2}{12 - 14 + 7} = \frac{31}{5}$

1. $6 + 2^3 \div 4 \cdot 3$

2. $\frac{3 \cdot 2 + 9}{12 - 3 \cdot 3}$

6.2 is okay,
I guess

3. $20 \div (12 + 2 - 10)$

4. $(10 - 4)^2 \div 3 \cdot 2$

5. $12 \div 3 + 11 \cdot 2^3 - 5(3 - 6)$

6. $27 \div 9 \cdot 3 - 20(3 + 1)$

7. $((-16 - (-2 + 1)) \cdot 2) \div 5$

8. $2 - 8 \div -2 - 3 - -12 \div -6 - -2$

- a. What is the opposite of Multiplication? Division
- b. What is the opposite of Division? Multiplication
- c. What is the opposite of Addition? Subtraction
- d. What is the opposite of Subtraction? Addition

One-Step Equations Solving Check-List

- Identify what is next to your variable
- Undo it by doing the opposite (to both sides)
- CHECK YOUR ANSWER by plugging back into the equation

Example #2 Solve the One-Step Equation and check your answer.

a. $c + 15 = 11$

$$\begin{array}{r} c + 15 = 11 \\ -15 \quad -15 \\ \hline c = -4 \end{array}$$

$-4 + 15 = 11 \checkmark$

b. $8 - v = 10$

c. $3f = 126$

d. $\frac{h}{40} = -6$