1.5: Equations and Solutions

SWBAT determine if a value is a solution to an equation.

Assignments

HW06

Expressions vs. Equations

- Variable
  - A letter representing a quantity that might change
- Term
  - A number, a variable, or numbers and variables multiplied together
- Expression
  - A set of term(s), usually connected by addition
- Equation
  - 2 expressions that are said to be equal

- State whether the following are expressions or equations.

1. $3x - 8$
2. $4x^3 - 9 = 87x$
3. $xy^7 - 8p + xy = 7x^3 - 8c$
4. v
5. $3 = 9x$
6. $2x + 4v - 19 + \frac{3}{x}$
7. $7b + 1$
8. $n^4 - 9m + 7$

$3x^2 - 8 = 67$

- What value(s) can x represent?
- What happens when we substitute 2 for x?
- What about -3?
- $\sqrt{7}$?
- In your groups, try to find a value to substitute that would make the equation true.
- 5 and -5 both make this particular equation true.
- Solution
  - the value(s) that make an equation TRUE

Determine if the values are solutions to the equations.

- $3x - 7 = 2x + 9;\ \ x = 3$

1. $2x + 9 = 4;\ x = 0$
2. $-100 = -2(7p - 6);\ p = -7$
3. $x^2 - x - 15 = x;\ x = 5$
4. $3x - \sqrt{7} = 15 - \sqrt{7};\ x = \sqrt{25}$
5. $-y\sqrt{2} + \sqrt{6} = -\sqrt{36};\ x = -\sqrt{12}$
6. $0 = x^2 - \pi^2;\ x = \pi$

1.6: One-Step Linear Equations

SWBAT solve one-step linear equations.

Solving Equations

- **Solution**: the value(s) that make the statement *TRUE*
- In order to do this, we have to isolate the variable.
- We have to “work backwards” to do this.
- We also need keep the equation “balanced” on both sides of the equal sign.

- Check your work! Does the value make the equation true?

Solving Equations

- **Solution**: the value(s) that make the statement *TRUE*
- In order to do this, we have to isolate the variable.
- We have to "work backwards" to do this.
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- Check your work! Does the value make the equation true?

- $x - 25 = 30$
- $2x = -90$

Solve the equations

1. $x + 18 = 17$
2. $-20 + y = 107$
3. $10 = x - 7$
4. $\frac{x}{3} = 7$
5. $-x = 20$
6. $18 = 18n$
7. $3x = 7$
8. $x + 18 = 18$
9. $x + \sqrt{5} = 6\sqrt{5}$
10. $-2x = -4\sqrt{17}$
11. $x + \frac{3}{5} = \frac{21}{25}$
12. $-\frac{4}{7}x = -\frac{10}{7}$