Chapter #8 Solving Linear Equations

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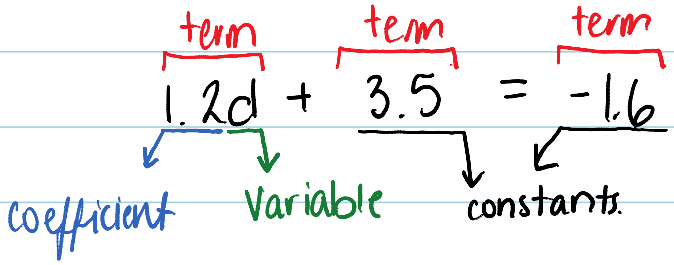
8.1 Solving Equations

equation: is a statement that 2 mathematical expressions have the same value

ex. $3x = -2$, $\frac{y}{2} = 1$, $z = -2.7$

Name the parts of an expression:



variable: a letter or symbol that represents an unknown or changing value

coefficient: a # that multiplies a variable ex. $2x$ (2: coefficient, x: variable)

term: a #, a variable, or the product of #'s & variables

constant: a term in an expression or equation that is just a # ex. In $2x-4$, -4 is the constant

expression: a mathematical phrase that does NOT have an 'equal' sign. ex. $3x^2 - 2x + 7$

equation: a mathematical phrase that does have an equal sign ex. $2x - 7 = 1$

substitution: a specific value is assigned to a variable in an expression or equation
ex. $3x + 5$ when $x = 1$

Identify the following:

(a) $2 - 7p$
- 2: constant
- -7: coefficient
- p: variable

(b) $3x^2 - 1y - 5$
- 3, -1: coefficients
- x^2, y: variables
- -5: constant

Coefficients: 3, -1

When solving an equation, you need to find what # the variable is.

~~*~~ the RULE is: What you do to 1 side of the equal sign, you must do to the other side.

Ex. #2

(a.) $\frac{-1.2x}{-1.2} = \frac{-3.96}{-1.2}$

$1x = 3.3$

(b.) $\frac{r}{0.28} = -4.5 \times 0.28$

$r = -4.5 \times 0.28$

$r = -4.5 \times 0.28$

$\boxed{r = -1.26}$

Ex. #3

(a.) $x + 2.4 = 6.5$

$-2.4 \quad -2.4$

$\boxed{x = 4.1}$

(b.) $15.2 = -7.3 + x$

$+7.3 \quad +7.3$

$\boxed{22.5 = x}$

(c.) $\frac{2x}{2} = \frac{3}{4} \div \frac{2}{1}$

$x = \frac{3}{4} \times \frac{1}{2}$

$\boxed{x = \frac{3}{8}}$

(d.) $\frac{m}{3} \times 3 = -\frac{2}{5} \times 3$

$m = -\frac{6}{5}$

$\boxed{m = -1\frac{1}{5}}$

Check your answers using substitution!

Ex. #4

(a.) $x + 3 = 7$

$-3 \quad -3$

$\boxed{x = 4}$

$(4) + 3 = 7$

$7 = 7$ ✓

pg. 301 # 6 – 12, 14, 16, 17, 26 – 28