6.2 Solve using Substitution 1-28-15

Substitution Property of Equality:

Equals may be substituted for equals.

~ one equal quantity (expression) can REPLACE another in an equation.

TO DO substitution – make sure we have 1 isolated variable.

Ex 1:

$y = 2x$

$* \; 3x + 4y = 11$

$3x + 4(2x) = 11$

$3x + 8x = 11$

$\frac{11x}{11} = \frac{11}{11}$

$x = 1$

Now y:

$y = 2x$

$y = 2(1) = 2$

One Solution (x,y): $(1, 2)$ ✓

Verify: $3x + 4y = 11$

$3(1) + 4(2) \stackrel{?}{=} 11$

$3 + 8 = 11$ ✓

Ex 2

$y = (-4x + 12)$

$* \; 2x + (y) = 2$

$2x + (-4x + 12) = 2$

$2x - 4x + 12 = 2$

$-2x + 12 = 2$

$-12 \quad -12$

$\frac{-2x}{-2} = \frac{-10}{-2}$

$x = 5$

Now y:

$y = -4x + 12$

$y = -4(5) + 12$

$y = -20 + 12$

$y = -8$

One Solution: $(5, -8)$ ✓

$2x + y = 2$?

$2(5) + (-8) = 2$ } verify

$10 - 8 = 2$

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ALSO: $y=(2x+6)$ $(y)=\frac{1}{2}x-7$

$$2x+6=\frac{1}{2}x-7$$