Bellwork Alg 2A Tuesday, November 15, 2016

1. Solve this system of equations. State the solution as an ordered pair.

$$y = \frac{2}{3}x - 4$$
$$5x - 6y = 15$$

2. State the number of solutions for each system of equations without graphing.

a)

$$y + 3 = -4(x + 1)$$
$$12x + 3y = 21$$

b)

$$5e + 20d = -15$$
$$8d + 2e = 14$$

3. A design is made up of squares and equilateral triangles. There is a total of 85 sides. The number of squares is nine less than twice the number of triangles. Write and solve a system of equations to find the number of squares and triangles in the design.

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Answers

1. Solve this system of equations. State the solution as an ordered pair.

$$y = \frac{2}{3}x - 4$$
$$5x - 6y = 15$$

using substitution

$5x - 6(\frac{2}{3}x - 4) = 15$

$5x - 4x + 24 = 15$

$x + 24 = 15$

$-24 \quad -24$

$x = -9$

$y = \frac{2}{3}(-9) - 4$

$= -6 - 4$

$y = -10$

$(-9, -10)$

2. State the number of solutions for each system of equations without graphing.

a)

$$y + 3 = -4(x + 1)$$
$$12x + 3y = 21$$

$y = -4x - 7$

$y = \frac{21 - 12x}{3} = 7 - 4x$

parallel lines same slope diff y-int

NO SOL

b) (x, y) (d, e)

$$5e + 20d = -15 \rightarrow e = \frac{-15 - 20d}{5} = -3 - 4d$$
$$8d + 2e = 14 \rightarrow e = \frac{14 - 8d}{2} = 7 - 4d$$

parallel lines same slope diff y-int

NO SOL

3. A design is made up of squares and equilateral triangles. There is a total of 85 sides. The number of squares is nine less than twice the number of triangles. Write and solve a system of equations to find the number of squares and triangles in the design.

S = # squares

T = # Δ's

sides: $4S + 3T = 85$

sq's: $S = 2T - 9$

$4(2T - 9) + 3T = 85$

$8T - 36 + 3T = 85$

$11T - 36 = 85$

$11T = 121$

$T = 11$

$S = 2(11) - 9$

$S = 13$

11 TRIANGLES

13 squares