

Hon Alg 2 Bellwork Thursday, October 5, 2016

7 1. Write a system of **FOUR** inequalities to model this situation. A tailor is going to make and sell some pants and shirts at next weeks city-wide sale. Material for shirts cost \$8 and material for pants cost \$12 to make. It takes him $1\frac{1}{2}$ hours to make a shirt and 2 hours to make a pair of pants. The tailor has \$144 to spend on material for the garments he is going to make. The tailor has only 24 hours to spend on making these garments.

2. 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.

3. State the number of solutions for this system of equations without solving the system.

$$5e + 20d = -15$$

$$8d + 2e = 14$$

Hon Alg 2 Bellwork Thursday, October 5, 2016

Answers

1. Write a system of **FOUR** inequalities to model this situation. A tailor is going to make and sell some pants and shirts at next weeks city-wide sale. Material for shirts cost \$8 and material for pants cost \$12 to make. It takes him $1\frac{1}{2}$ hours to make a shirt and 2 hours to make a pair of pants. The tailor has \$144 to spend on material for the garments he is going to make. The tailor has only 24 hours to spend on making these garments.

$$\begin{aligned} 8s + 12p &\leq 144 & s &\geq 0 \\ 1.5s + 2p &\leq 24 & p &\geq 0 \end{aligned}$$

$s = \# \text{ shirts}$
 $p = \# \text{ pairs of pants}$

2. 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.

11 Δ 's
13 squares

$$\begin{aligned} 4s + 3t &= 85 \\ s &= 2t - 9 \end{aligned} \quad \left\{ \begin{aligned} 4(2t - 9) + 3t &= 85 \\ 8t - 36 + 3t &= 85 \\ 11t - 36 &= 85 \\ 11t &= 121 \\ t &= 11 \end{aligned} \right.$$

$s = \# \text{ squares}$
 $t = \# \Delta$'s

$$\begin{aligned} s &= 2(11) - 9 \\ 22 - 9 &= 13 \\ s &= 13 \end{aligned}$$

3. State the number of solutions for this system of equations without solving the system.

NO SOL

same slope diff
y-int, lines
are parallel

$$\frac{5e}{5} = \frac{-15 - 20d}{5}$$

$$e = -3 - 4d$$

$$5e + 20d = -15$$

$$8d + 2e = 14$$

$$\frac{2e}{2} = \frac{14 - 8d}{2}$$

$$e = 7 - 4d$$

$(x, y) \rightarrow (d, e)$
get both eq's
into $e = \text{form 1}$