Algebra 1 Quiz 11.22.13

Version A

Growth Guru Key

period _____

1) Simplify: $6(4x-3)+3(x-5)$

$24x - 18 + 3x - 15$

$27x - 33$

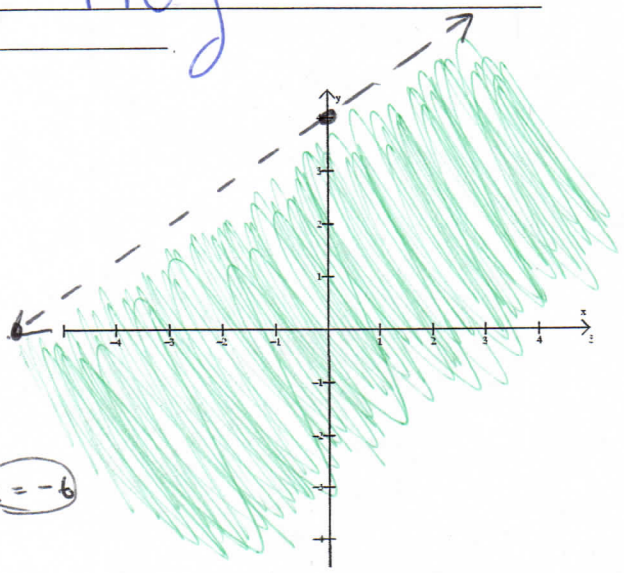
2) Graph the linear inequality

$2x - 3y < -12$

x	y
0	4
-6	0

$2(0) - 3y = -12 \rightarrow -3y = -12$, $y = 4$

$2x - 3(0) = -12 \rightarrow 2x = -12$, $x = -6$



3) Solve the system of linear equations using *elimination*

$-4y = -24$

$y = 6$

Solution: $(8, 6)$

$-2(3x - 2y = 12) \rightarrow -6x + 4y = -24$

$4x - 4y = 8$

$4x - 4y = 8$

$4(8) - 4y = 8$

$32 - 4y = 8$

$-32 \quad -32$

$-2x = -16$

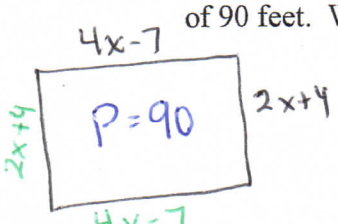
$-2 \quad -2$

$x = 8$

4) Simplify $\left(\frac{-2xy^3}{8x^{-2}y^5}\right)^3$

$\left(\frac{-2xy^3x^2}{8y^5}\right)^3 = \left(\frac{-2 \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y}{8 \cdot y \cdot y \cdot y \cdot y \cdot y}\right)^3 = \left(\frac{-x^3}{4y^2}\right)^3 = \left(\frac{-x^3}{4y^2}\right)\left(\frac{-x^3}{4y^2}\right)\left(\frac{-x^3}{4y^2}\right) = \frac{-x^9}{64y^6}$

5) Perimeter Question: A rectangle garden has a length of $4x - 7$ and a width of $2x + 4$ and a perimeter of 90 feet. What is the length and width of the garden to the nearest foot? (Draw a picture)



$90 = 4x-7 + 4x-7 + 2x+4 + 2x+4$

$90 = 12x - 6$

$+6 \quad +6$

$96 = 12x$

$12 \quad 12$

$x = 8$

length $= 4x - 7$ width $= 2x + 4$

$= 4(8) - 7$ $= 2(8) + 4$

length = 25 ft width = 20 ft

Bonus!! Population Growth: The current population of Russia is estimated at 143.5 million. The *10-year* growth rate shows the population decreasing by 3%. Using an exponential growth/decay model, what do you predict the population of Russia to be in 40 years? **Show all calculations!!!**

$P = a(1 \pm r)^t$

$P = 143.5(1 - .03)^4$

$P = 127.04$ million

In 40 years, the population of Russia should be about 127.04 million