Name: Key

3.3 & 4.3 Review

For numbers 1-3, write the equation in standard form.

1. $7x - 2y + 9 = 0$

$-9 \quad -9$

$7x - 2y = -9$

2. $2y = 5x - 12$

$-5x \quad -5x$

$-5x + 2y = -12$

3. $-\frac{2}{3}x = -5 + y$

$\cdot -3$

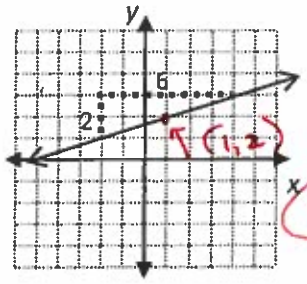
$2x = 15 - 3y$

$+3y \quad +3y$

$2x + 3y = 15$

For numbers 4 and 5, write an equation of the line shown in the graph in point-slope form.

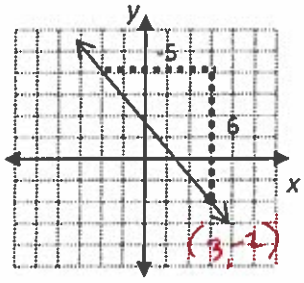
4.



$m = \frac{2}{6} = \frac{1}{3}$

$y - 2 = \frac{1}{3}(x - 1)$

5.



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

$y + 2 = -\frac{6}{5}(x - 3)$

For numbers 6 and 7, write an equation in point- slope form of the line that passes through the given points.

6. (7, 6) and (-3, 0)

$m = \frac{6 - 0}{7 - -3} = \frac{6}{10} = \frac{3}{5}$

$y - 6 = \frac{3}{5}(x - 7)$

7. (–1, –1) and (0, -4)

$m = \frac{-1 - -4}{-1 - 0} = \frac{3}{-1} = -3$

$y + 1 = -3(x + 1)$

8. Apple's iTunes sells downloadable music and has sales of 15 million pesos when the teenage population is 3 million. When the population grows to 4.5 million, sales increase to 26 million pesos.

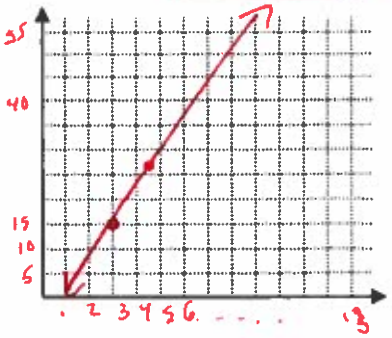
a) Write an equation of the line in point-slope form that passes through the given points, letting x represent population and y represent sales in millions of pesos. Use the point (3, 15). + (4.5, 26)

b) Graph the line found in exercise a.

c) Predict sales when the teenage population reaches 6 million. Test your prediction and interpret your findings. 37 million

$m = \frac{15 - 26}{3 - 4.5} = \frac{-11}{-1.5}$ or $\frac{11}{\frac{3}{2}} = \frac{22}{3} \approx 7.\overline{3}$

$y - 15 = \frac{22}{3}(x - 3)$



Find the value of r so the line that passes through each pair of points has the given slope.

9. $(r, 4), (7, 1), m = \frac{3}{4}$

$\frac{4-1}{r-7} = \frac{3}{4}$

$\frac{3}{r-7} = \frac{3}{4}$ $\boxed{r = 11}$

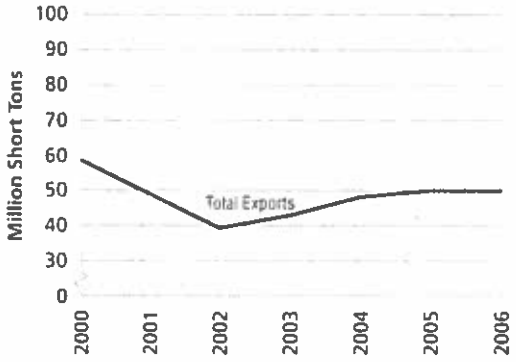
10. A daily newspaper had 12,125 subscribers when it began publication. Five years later it had 10,100 subscribers. What is the average yearly rate of change in the number of subscribers for the five-year period?

$(0, 12{,}125)$ $(5, 10{,}100)$

↑ year

$m = \frac{12125 - 10{,}100}{0 - 5} = \frac{2025}{-5} = \boxed{-405}$

11. The graph shows the annual coal exports from U.S. mines in millions of short tons.



Source: Energy Information Association

a. What was the rate of change in coal exports between 2001 and 2002? $m = \frac{\Delta y}{\Delta x} = \frac{40-50}{2002-2001} = \frac{-10}{1} = \boxed{-10}$

b. How does the rate of change in coal exports from 2005 to 2006 compare to that of 2001 to 2002?

0 slope Neg Slope

c. Explain the meaning of the part of the graph with a slope of zero.