Name: Key 1/29/2018 Algebra I – Test 4 Review

1) Given the following equations, identify the slope and y-intercept.

a) $y = -x + 8$ m = -1 b = 8

b) $x = 8$ m = undefined b = none

$y = 8$ 0 8

c) $y = \frac{1}{2}x + 7$ m = $\frac{1}{2}$ b = 7

2) Fill in the blanks for the definitions of slope:

$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$$

3) There are three different ways of writing the equation of a line. What are they called and what do they look like?

a) Standard $Ax + By = C$

b) point-slope $y = m(x - x_1) + y_1$

c) slope-inter $y = mx + b$

4) One day you buy 2 pool passes for \$12. Another day you by 8 pool passes for \$30.

a) Let x represent the number of pool passes and y represent the cost. Write 2 ordered pairs for this story. (2, 12) (8, 30)

b) Find the slope of the line. $\frac{30-12}{8-2} = \frac{18}{6} = 3$

c) Find the equation of the line. $y = 3(x-2) + 12$ $= 3x - 6 + 12$ $y = 3x + 6$

d) What does the slope of the line mean (in terms of units)? → \$3 per pass

e) What does the y-intercept mean (in terms of units)? → a fee you pay without buying any passes

5) Given the following information, write the equation of the line. Use any form you want.

a) slope = 3, y-inter: (0, -5) $y = 3x + -5$ $y = 3(x-0) - 5$ $= 3x - 0 - 5$

b) (−4, 0), (0, 6) $\frac{6-0}{0-4} = \frac{6}{4} \rightsquigarrow \frac{3}{2}$ $y = \frac{3}{2}(x-0) + 6$ $y = \frac{3}{2}x + 6$

6) Given the following points, find the equation of the line that passes through each pair of points. You may leave your answer in any form of a line that you like. [i.e. slope-intercept, point-slope, or standard]

a) (−1, 2) & (3, −2) $\frac{-2-2}{3-(-1)} = \frac{-4}{4} = -1$ $y = -1(x-3) - 2$ $= -x + 3 - 2$ $y = -x + 1$

b) (0, 3) & (−4, 0) $\frac{0-3}{-4-0} = \frac{-3}{-4} \rightsquigarrow \frac{3}{4}$ $y = \frac{3}{4}(x-0) + 3$ $= \frac{3}{4}x - 0 + 3$ $y = \frac{3}{4}x + 3$

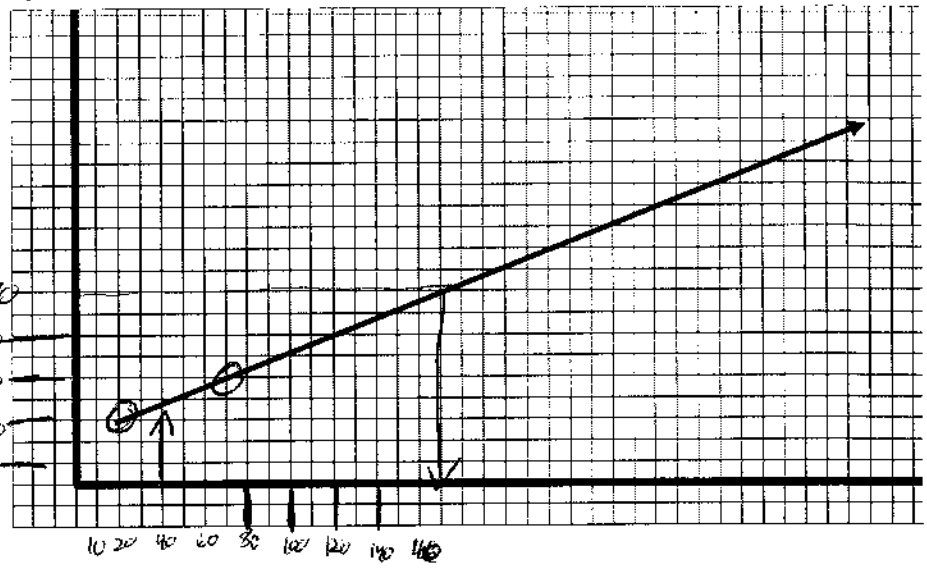
7) Lab results: An experiment was done to measure the time it takes for an engine to warm up. They measured the temperature of the radiator fluid (°*F*) and time (sec). The best fit line is given below. The x- and y-axis start at zero and count up by tens.

a) Label the axes.

b) Just like in your experiment, circle two "nice" points and find the equation of the line.

c) After 40secs, what temperature is the engine? ~38°F

d) How long until the engine is 90°*F*? 170 sec



(20, 30) (70, 50)

$$\frac{50-30}{70-20} = \frac{20}{50} = .4$$

$$y = .4(x-20) + 30$$

$$= .4x - 8 + 30$$

$$y = .4x + 22$$