Pre-AP Algebra 1 Unit 3 Quiz **Name:** _____

Sections 3-1 through 3-6 **Date:** _____ **Pd:** ____

1. Determine whether each equation is a linear equation. If yes, then write the equation in standard form if possible.

a. $3x - 5 + y = 2y - 4$ yes $Ax+By=C$

$+5 \quad -2y \quad -2y \quad +5$

$3x - y = 1$ (3)

b. $6x - xy = 4$ NO, xy term (3)

2. Determine whether each set of ordered pairs satisfies a linear function. Explain.

a. {(-4, 29), (-1, 22), (3, 15), (-1, 8), (-4, 1)} NO (3)

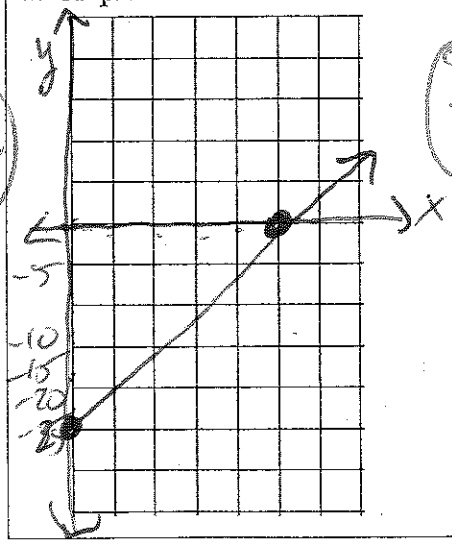
$\frac{22-29}{-1--4} = \frac{-7}{3}$ $\frac{15-22}{3--1} = \frac{-7}{4}$

b. $\left\{\left(\frac{1}{2},-13\right),\left(\frac{3}{4},-10\right),(1,-7),\left(\frac{5}{4},-4\right),\left(\frac{3}{2},-1\right)\right\}$ yes, constant Rate (3)

$\frac{-10--13}{\frac{3}{4}-\frac{1}{2}} = \frac{3}{1/4}$ $\frac{-7--10}{1-3/4} = \frac{3}{1/4}$ $\frac{-4--7}{\frac{5}{4}-1} = \frac{3}{1/4}$ $\frac{-1--4}{\frac{3}{2}-\frac{5}{4}} = \frac{3}{1/4}$

3. To thaw a specimen stored at $-25°C$, the temperature of a refrigeration tank is raised 5°C every hour. The temperature in the tank after x hours can be described by the function $f(x) = -25 + 5x$.

a. Graph the function. (2)



b. Identify its intercepts. (2)

$f(0) = -25 + 5x$

$f(0) = -25 + 5(0)$

$f(0) = -25$

$0 = -25 + 5x$

$x = 5$

c. What does each intercept represent? (2)

(0, -25) at zero hours the tank's temp was -25° C

(5, 0) at 5 hours the tanks temp was 5° C

4. Graph $6x + 3y = 12$ by using the x- and y- intercepts.

a. Find the intercepts algebraically and state them here:

$6(0) + 3y = 12$

$y = 4$ (2)

(0, 4)

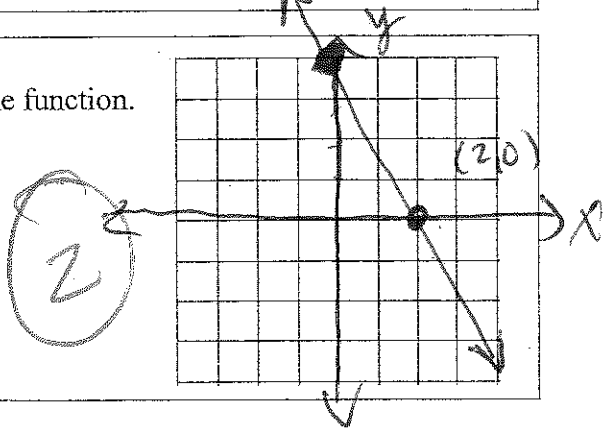
$6x + 3(0) = 12$

$6x = 12$

$x = 2$ (2)

(2, 0)

b. Graph the function. (2)



5. The following table shows the distance of a courier from her destination. What is the rate of change from 2:15 p.m. to 2:30 p.m. Explain the meaning of her rate of change between 2:15 and 2:30.

Time (p.m.)	2:15	2:30	2:45	3:00
Distance (mi)	5.5	5.5	5.0	0.5

+15 min
+0 mi

0 mi in 15 min
0 mph

3

3

It means she is not moving

6. Find the slope of a line that passes through each pair of points.

a. $(-3, 4)$ and $(2, -3)$

$m = \frac{-3-4}{2--3}$

$m = \frac{-7}{5}$

3

b. $(-4, -2)$ and $(4, -2)$

$m = \frac{-2--2}{4--4}$

$= \frac{0}{8} = 0$

3

$m = 0$

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

a. $(-6, r)$, $(-4, -2)$; $m = -2$

$\frac{-2}{1} = \frac{-2-r}{-4+6}$

$\frac{-2}{1} = \frac{-2-r}{2}$

$-4 = -2-r$

$-2 = -r$

6

$r = 2$

b. $(r, 18)$, $(11, 26)$; $m = 4$

$\frac{26-18}{11-r} = \frac{4}{1}$

$\frac{8}{11-r} = \frac{4}{1}$

$44 - 4r = 8$

$-44 \quad -44$

$-4r = -36$

$r = 9$

8. Explain how to tell whether the slope of a line is positive, negative, zero or undefined simply by looking at the graph. You should include sketches in your answer.

8

(+) slope
uphill line

(−) slope
downhill line

0 slope
horizontal line
$y = \#$

vertical line
undefined slope

9. The function p(x) = -3x + 100 represents a student's lunch account balance as a function of the number of lunches spent. What is the zero of the function and what does it represent?

$0 = -3x + 100$

$-100 = -3x$

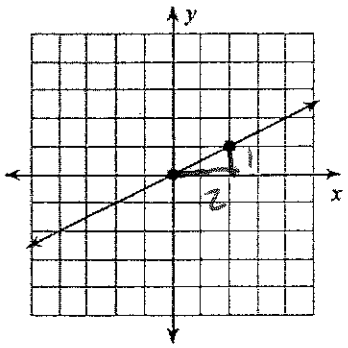
$x = 33.3$

3

represents # days until balance is zero

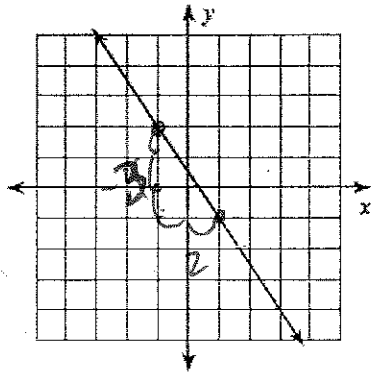
3

10. What is the slope of the given lines?

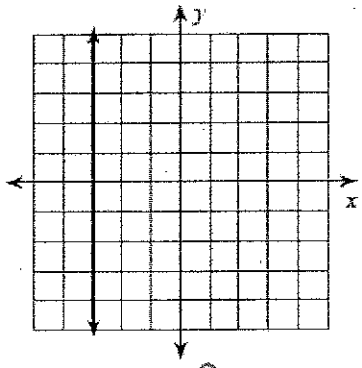


a) $m = \frac{1}{2}$

3



b) $m = -\frac{3}{2}$



c) undefined

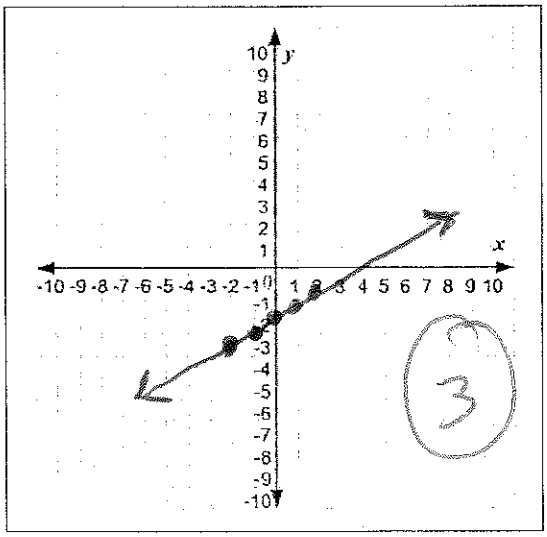
3

8

10. graph the function g(x) = 0.5x –2 using the domain : {-2,-1,0,1,2}

X	0.5(x) – 2	Y	(x,y)
-2	0.5(-2) - 2	-3	(-2,-3)
-1	0.5(-1) - 2	-2.5	(-1,-2.5)
0	0.5(0) - 2	-2	(0,-2)
1	0.5(1) - 2	-1.5	(0,-1.5)
2	0.5(2) - 2	-1	

5



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11. Does the following situation model a direct variation linear function? Graph the function.

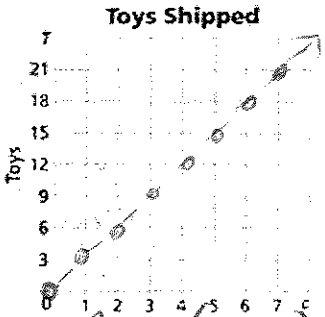
The number of toys shipped on a particular order is three times larger than the number of crates used to ship the order.

6pts

$T = 3C$

yes linear proportional

$\frac{3}{1} = \frac{6}{2} = \frac{9}{3}$



goes through (0,0)

12. If y varies directly as x, and $y = 12$ when $x = 18$, find x when $y = -16$ and write the direct variation form of the linear function.

6pts

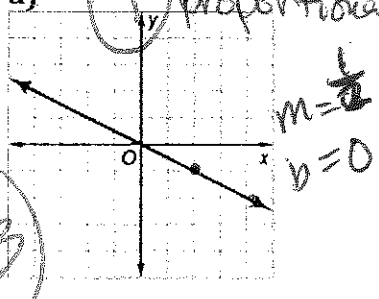
$K = \frac{12}{18}$ $K = \frac{2}{3}$ $y = \frac{2}{3}x$ $-16 = \frac{2}{3}x$

$-48 = 2x$

$-24 = x$

13. Identify each linear function as proportional or not-proportional and then write the equation of the line in function notation.

a) 1 proportional

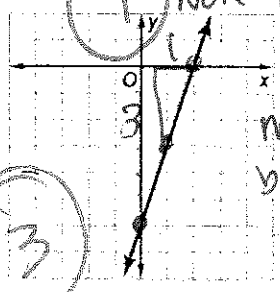


$m = -\frac{1}{2}$ $b = 0$

3

$y = -\frac{1}{2}x$

b) 1 Non-proportional

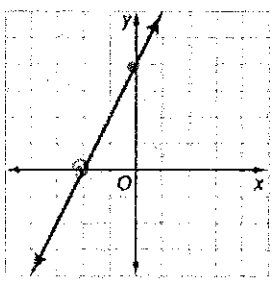


$m = 3$ $b = -6$

3

$y = 3x - 6$

c)



$m = 2$ $b = 4$

$y = 2x + 4$

8pts

14. Given the sequence: –5, –2, 1, 4, . . .

a) Determine if the sequence represents an arithmetic sequence and explain how you know. 2

arithmetic, constant difference of +3

b) What are the next 3 terms of the sequence? 2 7, 10, 13

c) What is the rule for this sequence using sequence notation and find the 50th term. 2

$a_n = -5 + (n-1)(3)$

$-5 + 3n - 3$

$a_n = 3n - 8$

$a_{50} = 3(50) - 8$

$a_{50} = 142$

d) Would it be possible for the sequence to have a term value of 75? Show how you answered this using algebra. 2

$75 = 3n - 8$

$83 = 3n$

$n = 27.6$ Not possible