Algebra 1 ECA Remediation

Review 12.1

Name _Answer Key_

1. What is the domain and range of the relation shown in the table provided? Determine if the relation is a function.

x	y
9	10
4	-3
5	4
1	3

   Domain: $\{9, 4, 5, 1\}$

   Range: $\{10, -3, 4, 3\}$

   Function? _Function_

2. Determine whether the set of ordered pairs represents a function.

   {(4, 4), (2, 7), (3, 7), (2, 5)}   _Not a function_

3. Michelle ran from her middle school to home at a constant speed. She immediately turned around and ran back to school, but at a faster constant speed. Michelle ran along a straight path to and from the school. Which graph best represents Michelle's distance from her school over time?
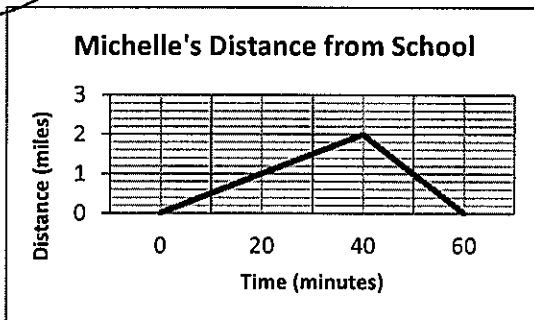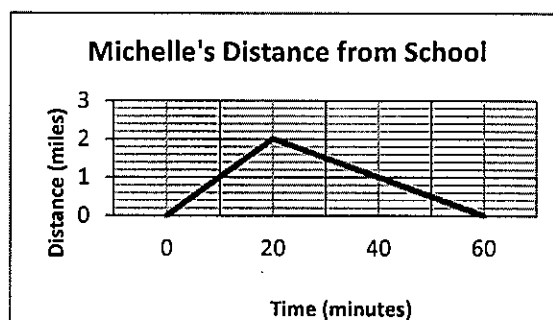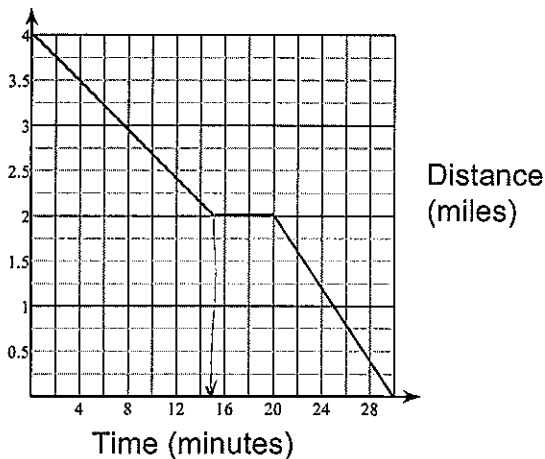
   A.

   Michelle's Distance from School

   B.

   Michelle's Distance from School

   C.

   Michelle's Distance from School

   D.

   Michelle's Distance from School
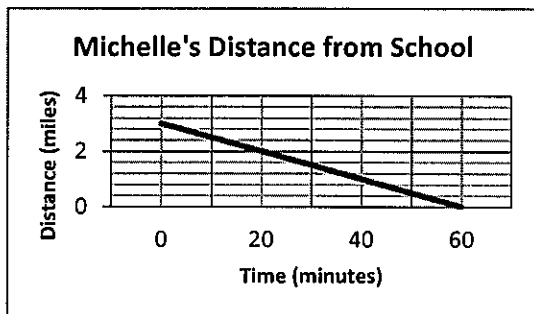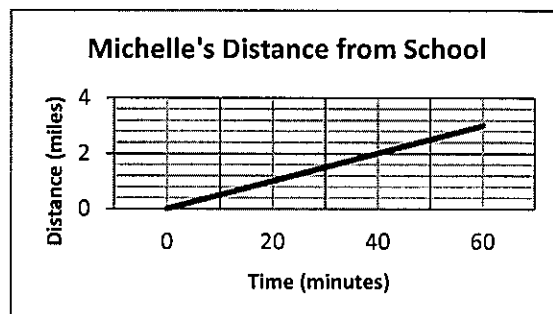
Mark rode his bicycle home from school. The graph below shows Mark's distance from home over time.

Mark's Bicycle Ride Home

Distance (miles)

Time (minutes)

5. On what time interval is Mark stopped?

$15 min$ to $20 min$

4. On what time interval is Mark traveling at 8 mph?

$Speed = \dfrac{2 miles}{15 min} = \dfrac{2 miles}{1/4 hr}$

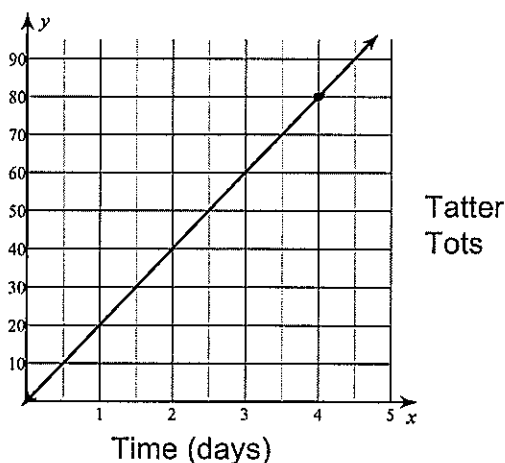$= (2 miles)(4 hr)$

$= 8 mph$

$first 15 min$

6. On what time interval is Mark traveling the fastest?

$20 min$ to $30 min$

The graph below represents the total number of times a teenager eats a tatter tot over a 5 - day period.

Tatter Tots Eaten

Tatter Tots

Time (days)

8. Write an equation that represents the total number of Tatter tots, T, eaten after, d, days.

$T = 20d$

7. What is the slope of this line segment? Include the appropriate units in your answer.

$m = \dfrac{80 \text{ Tatter tots}}{4 \text{ days}}$

$= \dfrac{20 \text{ Tatter tots per day}}{1}$

9. If this trend continues, how many tatter tots will be eaten 10 days?
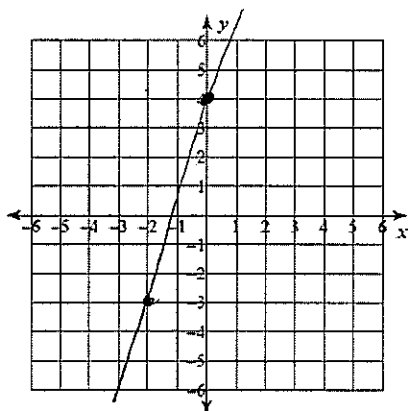
$T = 20(10)$

$= 200 \text{ days}$

Find the slope of the line through the pair of points.

10. $(12, -9), (2, -19)$

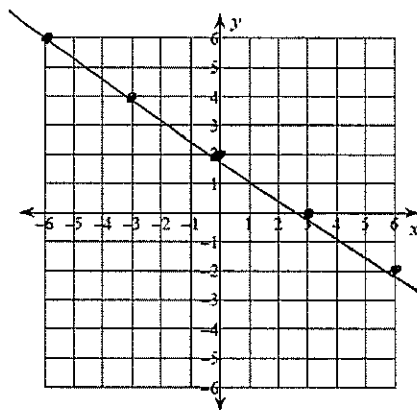$$m = \frac{-9 +/+ 19}{12 - 2} = \frac{10}{10} = 1$$

Sketch the graph of each line.
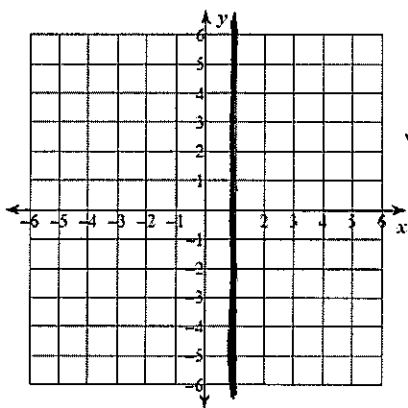
11. $y = \dfrac{7}{2}x + 4$

$m = \dfrac{7}{2}$

$b = 4$

12. $y = -\dfrac{2}{3}x + 2$

$m = -\dfrac{2}{3}$
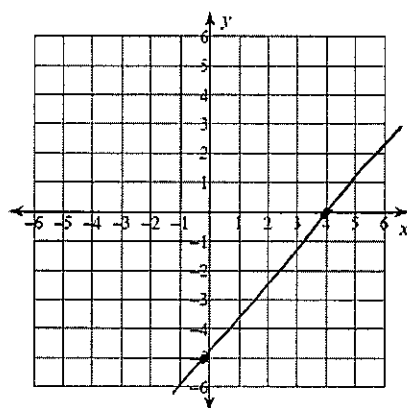
$b = 2$

13. $x = 1$

Horizontal line
✓ no slope
no y-int

14. $5x - 4y = 20$

x	y
0	-5
	0

$5(0) - 4y = 20$

$\dfrac{-4y}{-4} = \dfrac{20}{-4}$

$y = -5$

$5x - 4(0) = 20$

$\dfrac{5x}{5} = \dfrac{20}{5}$

$x = 4$

Find the slope, x – intercept, and y – intercept of the following.

15. $3x - 2y = 10$

$$\underline{-3x \qquad -3x}$$

$$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{10}{-2}$$

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

$$\boxed{m = \frac{3}{2}} \quad b = -5$$

$x = 0$

$3(0) - 2y = 10$

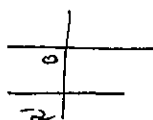$$\frac{-2y}{-2} = \frac{10}{-2}$$

$$\boxed{y = -5}$$

$y = 0$

$3x - 2(0) = 10$

$$\frac{3x}{3} = \frac{10}{3}$$

$$\boxed{x = \frac{10}{3}}$$

Name the x – and y – intercepts.

16. $y = -2$ Horizontal Line

y-int → -2
no x-int

Determine the y – intercept of each graph.

17. $x - 8 = -4y$ $x = 0$

$$\frac{0 - 8}{-4} = \frac{-4y}{-4}$$

$$2 = y$$

Write the slope-intercept form of the equation of the line through the given point with the given slope.

18. through (1, -3) and slope = 0

$$y - y_1 = m(x - x_1)$$

$$y + {}^+3 = 0(x - 1)$$

$$y + 3 = 0$$

$$\underline{-3 \qquad -3}$$

$$y = -3$$

19. through (5, -2), slope = $\frac{1}{3}$

$$y + {}^+2 = \frac{1}{3}(x - 5)$$

$$3(y + 2) = 1(x - 5)$$

$$3y + 6 = x - 5$$

$$\underline{-6 \qquad\qquad -6}$$

$$\frac{3y}{3} = \frac{x}{3} - \frac{11}{3}$$

$$y = \frac{1}{3}x - \frac{11}{3}$$

Write the slope-intercept form of the equation of the line through the given points.

20. through (5, -2) and (1, 0)

$$m = \frac{-2 - 0}{5 - 1} = \frac{-2}{4} = \frac{-1}{2}$$

$$y + {}^+2 = \frac{-1}{2}(x - 5)$$

$$2(y + 2) = -x + 5$$

$$2y + 4 = -x + 5$$

$$\underline{-4 \qquad\qquad -4}$$

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

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

21. through (1, 1) and (1, -1)

$$m = \frac{1 + {}^+1}{1 - 1} = \frac{2}{0} \qquad \text{no slope}$$

$$x = 1$$

22. Smith spent $90 on 15 coffee mugs.

A. Write an inequality that can be used to determine the maximum number of coffee mugs that Smith can buy with $50.

$$\text{unit price} = \frac{\$90}{15} = \$6 \qquad 50 \geq 6c$$

$$c = \# \text{ of coffee mugs}$$

B. What is the maximum number of coffee mugs that Smith can buy with $50?

$$\frac{50}{6} \geq \frac{6c}{6}$$

$$8.\overline{3} \geq c$$

Smith can buy 8 coffee mugs

23. George rented a bike from Kim's Bikes. It cost $20 plus an hourly rate. It cost George $39.50 to rent the bike for 6 hours.

A. Write an inequality to find the maximum number of hours that George can rent the bike for if he has $55 to spend.

$$39.50 = 20 + x(6)$$

$20 fee
hourly rate
$39.50 → 6 hours.

$$x = \text{the hourly rate}$$
$$39.5 - 20 = 6x$$
$$\frac{19.5}{6} = \frac{6x}{6} \qquad \$3.25 = x$$

B. What is the maximum number of hours that George can rent the bike for if he has $55 to spend?

$$55 \geq 20 + 3.25h \qquad h = \# \text{ of hours.}$$
$$\underline{-20 \qquad -20}$$
$$35 \geq 3.25h$$
$$10.769 \geq h$$

George can rent the bike for 10 hours.
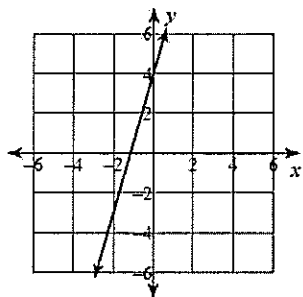
1. Domain {9, 4, 5, 1}   Range {10, -3, 4, 3}   Function   2. Not a function   3. C
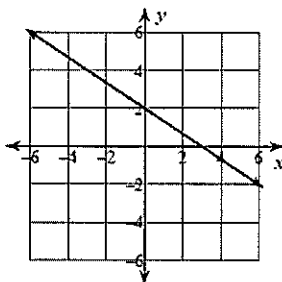
4. The first 15 minutes   5. 15 minutes to 20 minutes   6. 20 minutes to 30 minutes

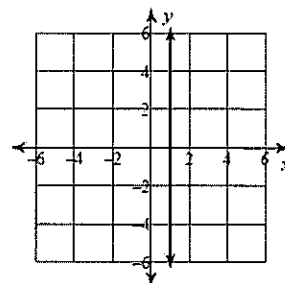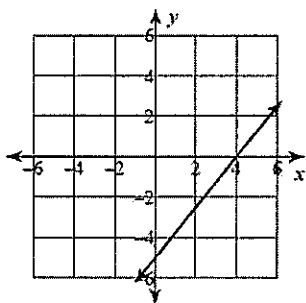7. $\dfrac{20}{1}$ Tatter Tots per Day   8. T = 20d   9. 200 Tatter tots   10. 1

11.

12.

13.

14.

15. $m = \dfrac{3}{2}$, b = -5, x − int = $\dfrac{10}{3}$ 16. no x-int, b = -2   17. y = 2   18. y = -3

19. $y = \dfrac{1}{3}x - \dfrac{11}{3}$ 20. $y = -\dfrac{1}{2}x + \dfrac{1}{2}$ 21. x = 1   22. A) 50 ≥ 6x, B) 8 coffee mugs

23. A) 55 ≥ 3.25x + 20, B) 10 hours