

Name: Corrections

Date: _____

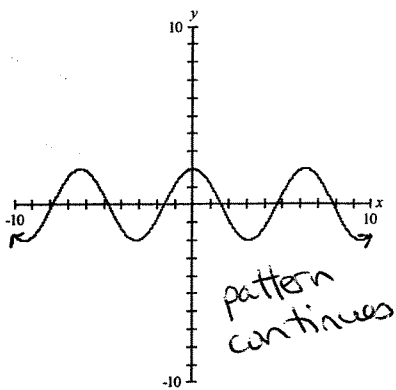
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P. Math 10 Review Functions – Semester 2

Part A: Definitions:

1. Domain: 'x' values for a relation } Includes: Table of values,
2. Range: 'y' values for a relation } Ordered pairs, graphs, equations
3. Relation: Situation where one or more output values for every input
4. Function: Situation where one output is obtained for every input

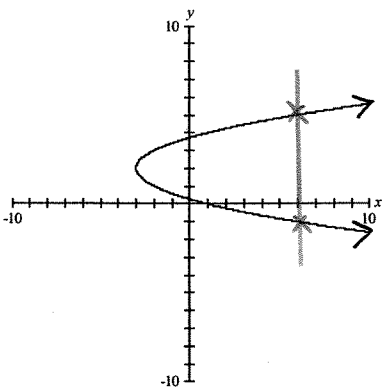
Part B: State the domain (D), range (R), and if the graph is a function (F) or not Yes/No).



D: $x \in \mathbb{R}$

R: $-2 \leq y \leq 2$

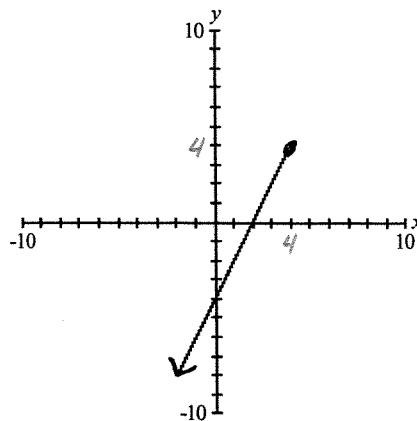
F: Yes



D: $x \geq -3$

R: $y \in \mathbb{R}$

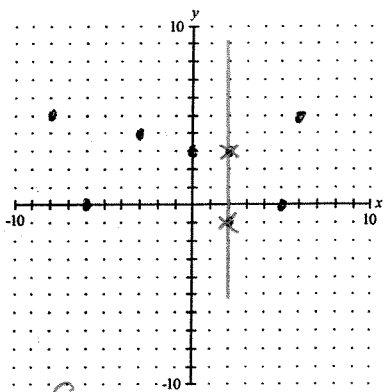
F: No



D: $x \leq 4$

R: $y \leq 4$

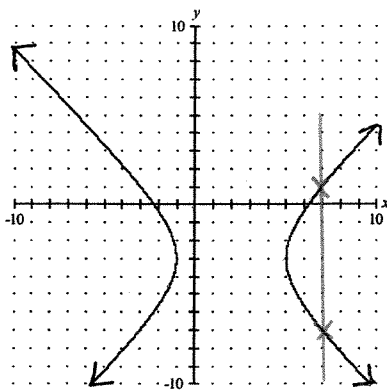
F: Yes



D: $\{-8, -6, -3, 0, 2, 5, 6\}$

R: $\{-1, 0, 3, 4, 5\}$

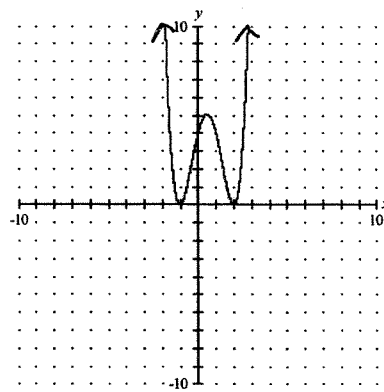
F: No



D: $x \leq -1$ and $x \geq 5$

R: $y \in \mathbb{R}$

F: No



D: $x \in \mathbb{R}$

R: $y \geq 0$

F: Yes

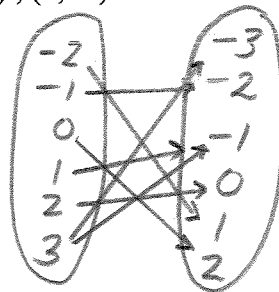
Part C: More Domain and Range.

Write the domain, range, and draw the relation as an arrow diagram and indicate if the relation is a function.

$(3, -1), (2, 0), (1, -1), (0, 2), (-1, -2), (-2, 1), (3, -3)$

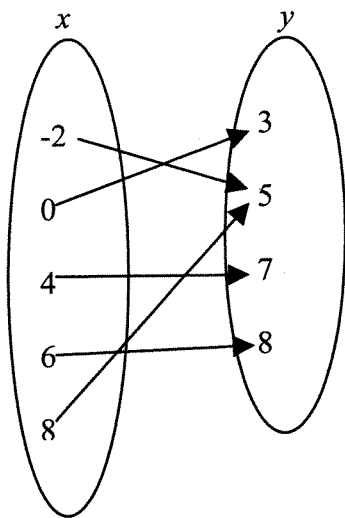
$D: \{-2, -1, 0, 1, 2, 3\}$

$R: \{-3, -2, -1, 0, 1, 2\}$



Not a function
[3 is repeated]

Part D: Write the relation as a set of ordered pairs, state the domain, range, and whether the relation is a function.



$\{(-2, 5), (0, 3), (4, 7), (6, 8), (8, 5)\}$

$D: \{-2, 0, 4, 6, 8\}$

$R: \{3, 5, 7, 8\}$

Function

Part E: Given the following equations, circle the ones that are linear.

a) $y = 5x^2 - 3$

b) $x = 6 - y$

c) $2y = 3x - 6$

d) $yx = 6$

e) $x = 6$

[vertical line]

Part F: Partial Variation.

1) Consider the following information:

y varies partially as x
when $x = -2, y = 5$
and when $x = 4, y = -7$

$m = \frac{-7 - 5}{4 - (-2)} = \frac{-12}{6} = \underline{\underline{-2}}$

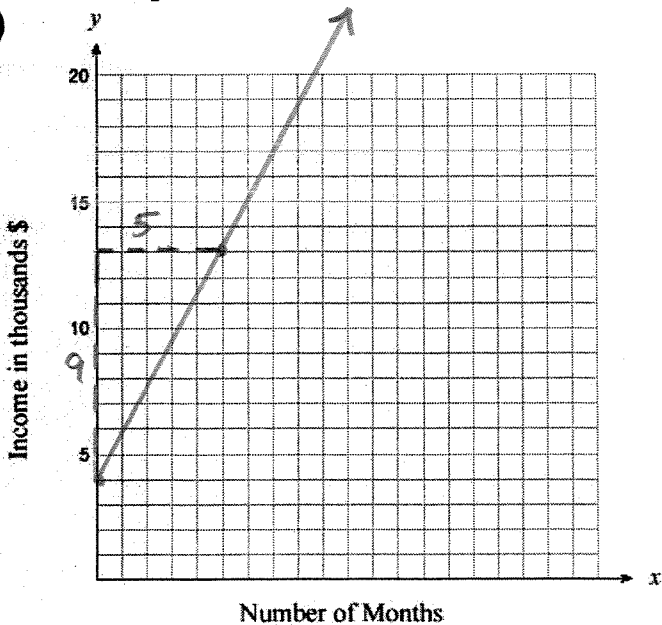
What is the equation of the function that represents the above data?

$\hookrightarrow y = mx + b$

$y = -2x + b$; subst $(-2, 5)$
 $5 = -2(-2) + b$
 $1 = b$

$\therefore y = -2x + 1$
or
 $2x + y - 1 = 0$

2) Given the following equation $I = 1.8M + 4$. Where I represents the total Income up to date and M represents number of months.



a) Graph the equation.

b) State the slope of the graph. $m = \frac{18}{10} = \frac{9}{5}$

c) State the y-intercept of the graph. $b = 4 [4000]$

d) Give the domain and range of the graph.

$$D: M \geq 0 \quad R: I \geq 4000$$

e) Is the graph a function?

yes

f) How much money would the person make after 2 years?

$$I = 1.8(24 \text{ months}) + 4$$

$$I = 47.2 \quad [\$47,200.00]$$

Part G: Direct Variation.

1) If y varies directly as x and $y = 6$ when $x = 24$, then

a) Find k .

$$k = \frac{6}{24} \left\{ \frac{y}{x} \right\}$$

b) Find y when $x = 48$.

$$k = \frac{1}{4} \quad \therefore y = \frac{1}{4}x$$

$$\therefore y = \frac{1}{4}(48) \quad \therefore y = 12$$

2. The distance traveled varies directly as the time traveled. If you travel for a distance of 219 km for 3 hours, how long will it take you to travel 405 km?

$$D = kt \quad \therefore k = 73 \text{ km/h}$$

$$219 = k(3) \quad \therefore D = 73t$$

$$\therefore 405 = 73t$$

$$5.55 \text{ hours} = t$$

or

$$5 \text{ h } 33 \text{ min} = t$$

Part H: Function Notation.

If $f(x) = 5x + 7$ and $g(x) = x^2 - 17$

a) Find $g(-3) = (-3)^2 - 17 = -8$ b) Find $f(-7) = 5(-7) + 7 = -28$

c) Find $f(g(4)) \neq g(4) = -1 \quad \therefore f(-1) = 2$

d) Find $g(x-4)$ simplify. $= (x-4)^2 - 17 = x^2 - 8x + 16 - 17 = x^2 - 8x - 1$

e) Find x if $f(x) = 22$ $5x + 7 = 22$ $5x = 15$ $x = 3$

f) Find x if $f(x) = g(x)$ $x^2 - 17 = 5x + 7$ $x^2 - 5x - 24 = 0$ $(x-8)(x+3) = 0$

g) $f(5) + f\left(\frac{1}{5}\right) = [5(5) + 7] + [5\left(\frac{1}{5}\right) + 7]$ $x = 8, -3$

$$= 32 + 8$$

$$= 40$$