

$$f(x) = 3x^2 - 5 \quad g(x) = \frac{4x-2}{2} \quad h(x) = 3(x-3)^2 + 4 \quad i(x) = 6x$$

$$g(x) = 2x - 1$$

① Find $h(\underline{-2})$

$$h(\underline{x}) = 3(\underline{x}-3)^2 + 4$$

$$h(\underline{-2}) = 3(\underline{-2}-3)^2 + 4$$

$$h(-2) = 3(-5)^2 + 4$$

$$h(-2) = 3(25) + 4$$

$$h(-2) = 75 + 4$$

$$h(-2) = 79$$

↑ ↑
x = -2 y = 79

$(-2, 79)$

④ $i(x) = \underline{18}$ $y = 18$

$$\underline{i(x)} = 6x$$

$$\frac{\underline{18}}{6} = \frac{6x}{6}$$

$$3 = x$$

$(\underline{3}, \underline{18})$

$$\textcircled{5} \quad h(x) = 151$$

$$h(x) = 3(x-3)^2 + 4$$

$$151 = 3(x-3)^2 + 4$$

$$151 - 4 = 3(x-3)^2$$

$$\frac{147}{3} = \frac{3(x-3)^2}{3}$$

$$\sqrt{49} = \sqrt{(x-3)^2}$$

$$\pm 7 = x - 3$$

$$7 + 3 = x$$

$$10 = x$$

a)

$$\left| \begin{array}{l} -7 + 3 = x \\ -4 = x \end{array} \right.$$

Assignment

Answers:

① b)

② a)

③ c)

④ b)

⑤ a)

⑥ d)

⑦ c)

⑧ a)

① $f(6) = 103$

② $g(6) - i(4) = -13$

③ $x = 9$
 $x = -3$

a) Non Function

$$D: \{x \mid x \geq -6, x \in \mathbb{R}\}$$

$$R: \{y \mid y \leq 4, y \in \mathbb{R}\}$$

b) Function

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

$$R: \{y \mid y \geq -4, y \in \mathbb{R}\}$$

Review sheet

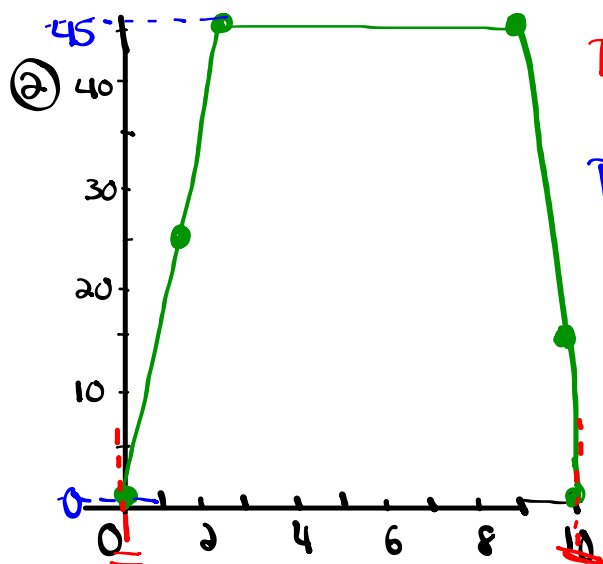
① Identify the domain, range, and if each is a function or non-function.

a) $\{(\underline{0}, \underline{0}), (\underline{5}, \underline{1}), (\underline{10}, \underline{2}), (\underline{15}, \underline{3}), (\underline{20}, \underline{4})\}$

Domain: $\{0, 5, 10, 15, 20\}$

Range: $\{0, 1, 2, 3, 4\}$

It is a function because the x-values do not repeat



D: $\{x \mid 0 \leq x \leq 10, x \in \mathbb{R}\}$

R: $\{y \mid 0 \leq y \leq 45, y \in \mathbb{R}\}$

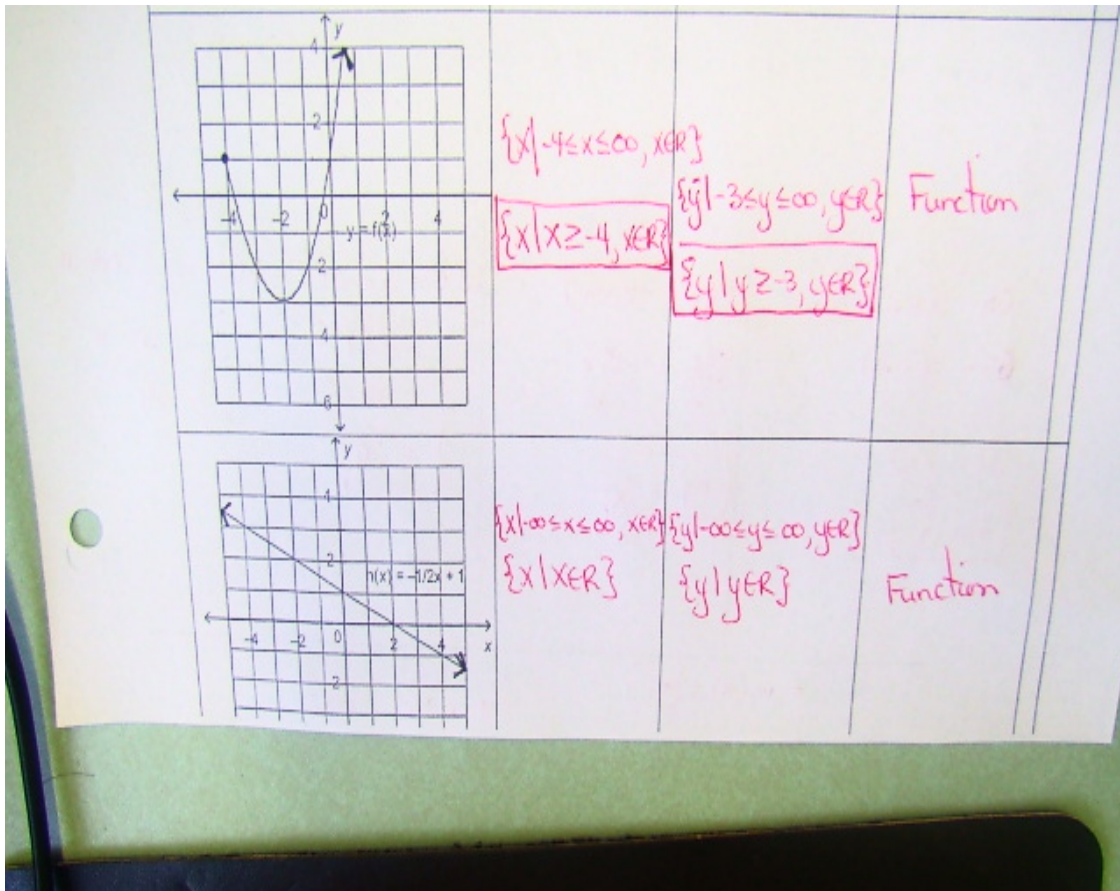
Function

1. Identify the domain, range and if each is a function or non-function?

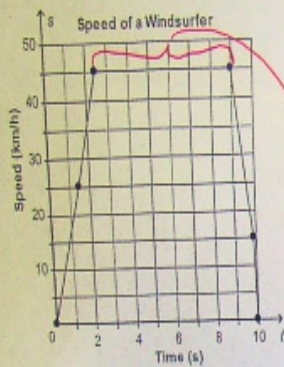
- F a) $\{(0,0), (5,1), (10,2), (15,3), (20,4)\}$ D: $\{0,5,10,15,20\}$ R: $\{0,1,2,3,4\}$
- NF b) $\{(0,3), (0,1), (1,2), (2,3), (4,4)\}$ D: $\{0,1,2,4\}$ R: $\{3,1,2,4\}$
- F c) $\{(0,5), (5,6), (1,2), (7,9), (15,4)\}$ D: $\{0,5,1,7,15\}$ R: $\{5,6,2,9,4\}$
- F d) $\{(0,6), (8,1), (10,1), (15,3), (20,4)\}$ D: $\{0,8,10,15,20\}$ R: $\{6,1,3,4\}$
- NF e) $\{(10,8), (16,4), (12,7), (10,3), (19,6)\}$ D: $\{10,16,12,19\}$ R: $\{8,4,7,3,6\}$

2. Complete the chart:

Relation	Domain	Range	Function / Nonfunction
	$\{x 0 \leq x \leq 10, x \in \mathbb{R}\}$	$\{y 0 \leq y \leq 45, y \in \mathbb{R}\}$	Function

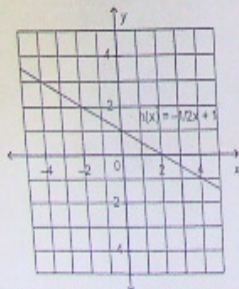


3. This graph shows the speed of a windsurfer, s , as a function of time, t .



- a) How long did the windsurfing last? **10 seconds**
- b) How long was the windsurfer's speed 45km/h? **(2.5s - 9s)**
→ **6.5 seconds**

4. This is a graph of the function

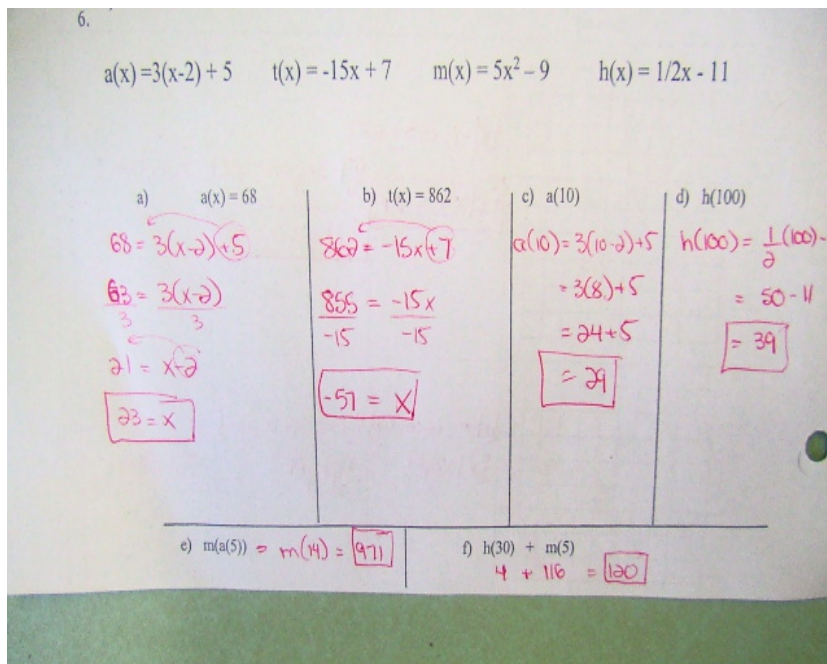


$$h(x) = -\frac{1}{2}x + 1$$

a) $h(-2) = -\frac{1}{2}(-2) + 1$
 $= 1 + 1$
 $= 2$

b) $-1 = -\frac{1}{2}x + 1$
 $-2 = -\frac{1}{2}x$
 $4 = x$

- a) Determine the value of y when the x value is -2 .
- b) Determine the value of x when the y value is -1 .



e) (i) Find $a(5)$

$$a(x) = 3(x-2) + 5$$

$$a(5) = 3(5-2) + 5$$

$$a(5) = 3(3) + 5$$

$$a(5) = 9 + 5$$

$$a(5) = 14$$

(ii) Find $m(14)$

$$m(x) = 5x^2 - 9$$

$$m(14) = 5(14)^2 - 9$$

$$m(14) = 5(196) - 9$$

$$m(14) = 980 - 9$$

$$m(14) = 971$$

f) (i) Find $h(30)$

$$h(x) = \frac{1}{2}x - 11$$

$$h(30) = \frac{1}{2}(30) - 11$$

$$h(30) = 15 - 11$$

$$h(30) = 4$$

(ii) Find $m(5)$

$$m(x) = 5x^2 - 9$$

$$m(5) = 5(5)^2 - 9$$

$$m(5) = 5(25) - 9$$

$$m(5) = 125 - 9$$

$$m(5) = 116$$

(iii) Find $h(30) + m(5)$

$$= 4 + 116$$

$$= 120$$

