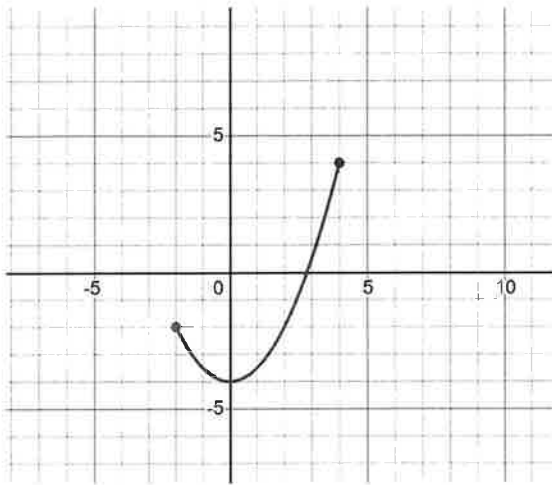


Section 2.1 – Practice Problems

1. For each graph, identify the Domain and Range and whether it is a function or not

a)

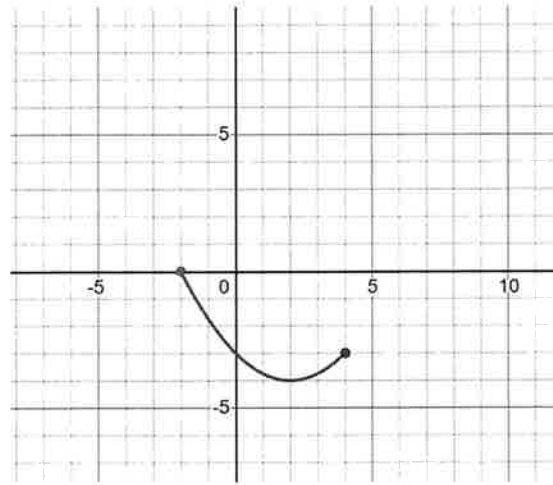


$D: -2 \leq x \leq 4$

$R: -4 \leq y \leq 4$

Function: Yes, passes VLT

b)

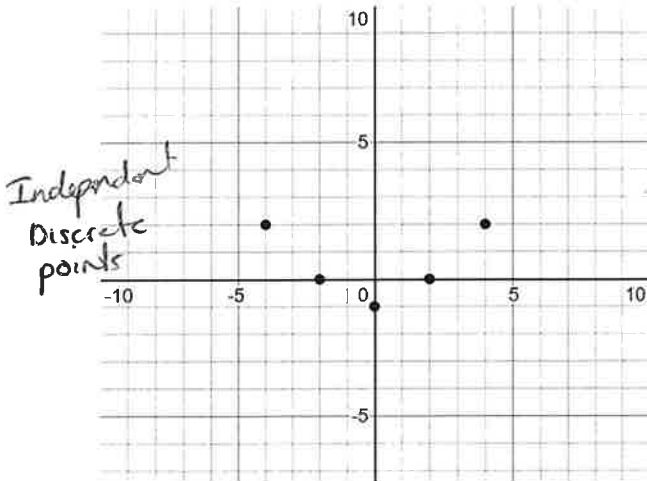


$D: -2 \leq x \leq 4$

$R: -4 \leq y \leq 0$

Function: Yes, passes VLT

c)

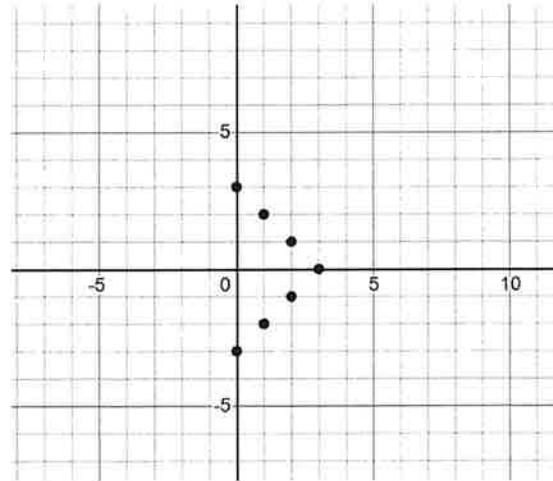


$D: \{-4, -2, 0, 2, 4\}$

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

Function: Yes it is, function

d)



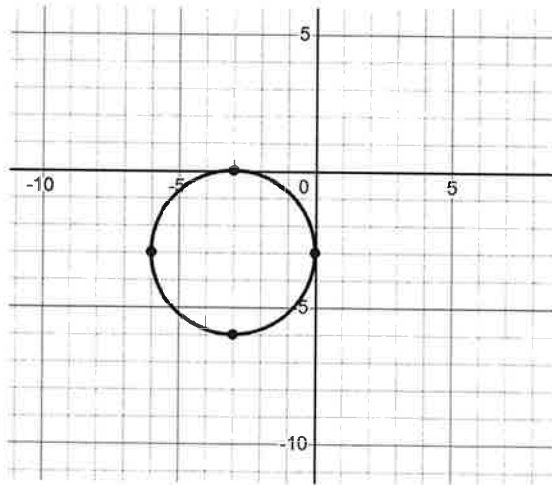
$D: \{0, 1, 2, 3\}$

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

Function: not a function

Pre-Calculus 12

e)

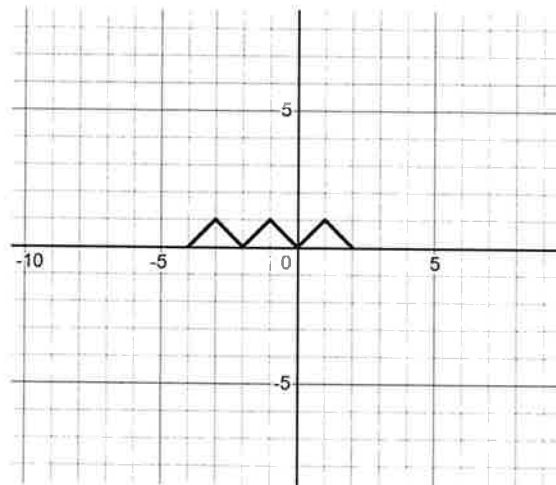


$D: -6 \leq x \leq 0$

$R: -6 \leq y \leq 0$

Function: NOT A FUNCTION

f)

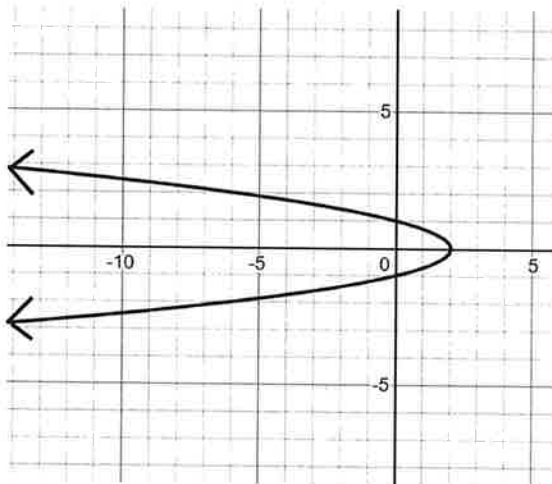


$D: -4 \leq x \leq 2$

$R: 0 \leq y \leq 1$

Function: Yes it is

g)

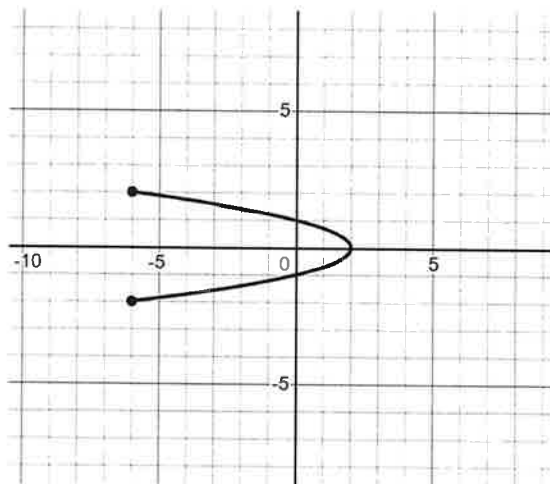


$D: x \leq 2$

$R: \text{All real } x\text{'s}$

Function: NOT A FUNCTION

h)



$D: -6 \leq x \leq 2$

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

Function: not a function

Pre-Calculus 12

For $f(x) = 3x - 2$, find:

2. $f(3)$

sub 3 for x

$$f(3) = 3(3) - 2$$

$$f(3) = 9 - 2$$

$$f(3) = 7$$

$(3, 7)$

3. $f(-4)$

$$f(-4) = 3(-4) - 2$$

$$f(-4) = -12 - 2$$

$$f(-4) = -14$$

$(-4, -14)$

4. $f(k)$

$$f(k) = 3k - 2$$

5. $f(2x - 1)$

$$f(2x-1) = 3(2x-1) - 2$$

$$= 6x - 3 - 2$$

$$= 6x - 5$$

6. $f(x + h)$

$$f(x+h) = 3(x+h) - 2$$

$$= 3x + 3h - 2$$

7. $f(x) + f(h)$

$$f(x) = 3x - 2 \quad f(h) = 3h - 2$$

$$f(x) + f(h) = (3x - 2) + (3h - 2)$$

$$3x - 2 + 3h - 2$$

$$\boxed{3x + 3h - 4}$$

For $f(x) = 4x + 5$, find:

8. $f(3)$

$$f(3) = 4(3) + 5$$

$$f(3) = 12 + 5$$

$$f(3) = 17$$

$(3, 17)$

9. $f(-4)$

$$f(-4) = 4(-4) + 5$$

$$f(-4) = -16 + 5$$

$$f(-4) = -11$$

$(-4, -11)$

10. $f(k)$

$$f(k) = 4k + 5$$

11. $f(2x - 1)$

$$\begin{aligned} f(2x-1) &= 4(2x-1) + 5 \\ &= 8x - 4 + 5 \\ &= 8x + 1 \end{aligned}$$

12. $f(x + h)$

$$\begin{aligned} f(x+h) &= 4(x+h) + 5 \\ &= 4x + 4h + 5 \end{aligned}$$

13. $f(x) + f(h)$

$$\begin{aligned} f(x) &= 4x + 5 \\ f(h) &= 4h + 5 \\ f(x) + f(h) &= (4x + 5) + (4h + 5) \\ &= 4x + 4h + 10 \end{aligned}$$

For $f(x) = -5x + 2$, find x when:

14. $f(x) = -12$

↑ sub this for $f(x)$

$$\begin{array}{r} -12 = -5x + 2 \\ -2 \quad \quad -2 \end{array}$$

$$-14 = -5x$$

$$x = \frac{-14}{-5}$$

$$x = \frac{14}{5}$$

15. $f(x) = 7$

$$\begin{array}{r} 7 = -5x + 2 \\ -2 \quad \quad -2 \end{array}$$

$$5 = -5x$$

$$x = -1$$