# Functions Practice

Name: _____ Date: _____

## Question 1

Determine the function values

I. $f(x) = 2x + 6$

$f(4) =$

$f(0.5) =$

$f(18) =$

II. $f(x) = 5x^2 + x$

$f(3) =$

$f(-3) =$

$f(-0.5) =$

III. $f(x) = \dfrac{3x^2 + 4}{2x^2 + 5}$

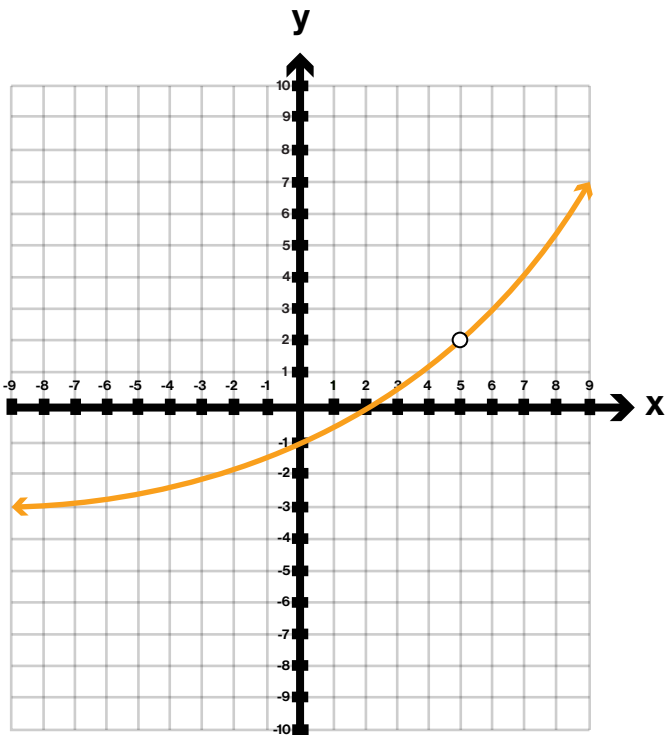
$f(9) =$

$f(-1) =$

## Question 2

Determine the domain and range

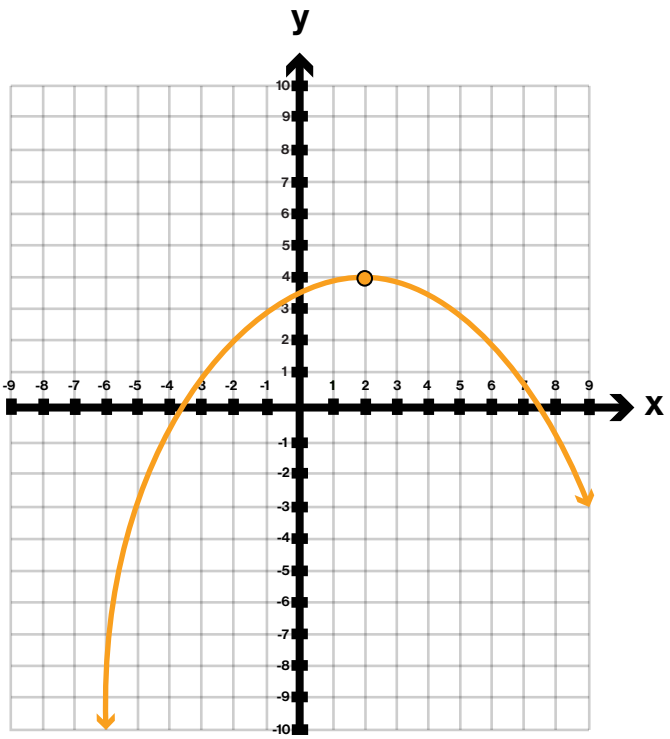
I.




Domain :

Range :

II.

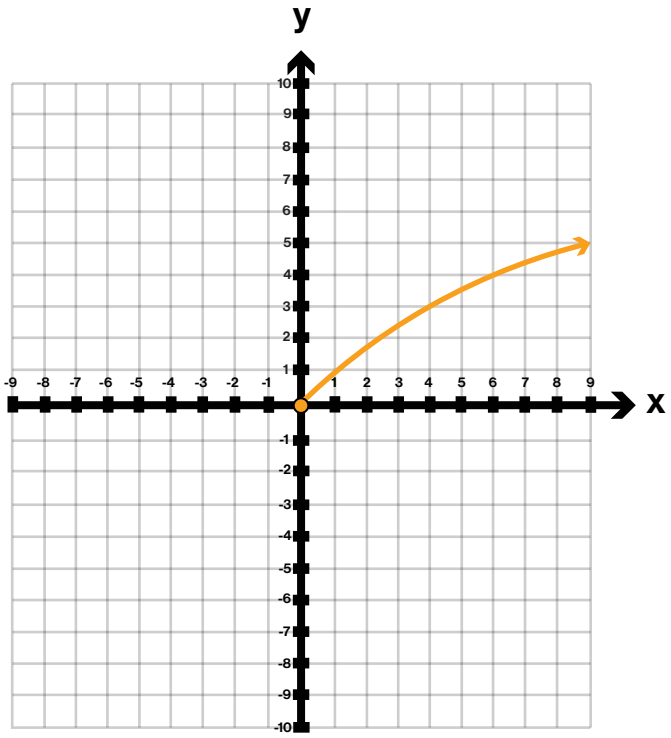



Domain :

Range :

# Functions Practice

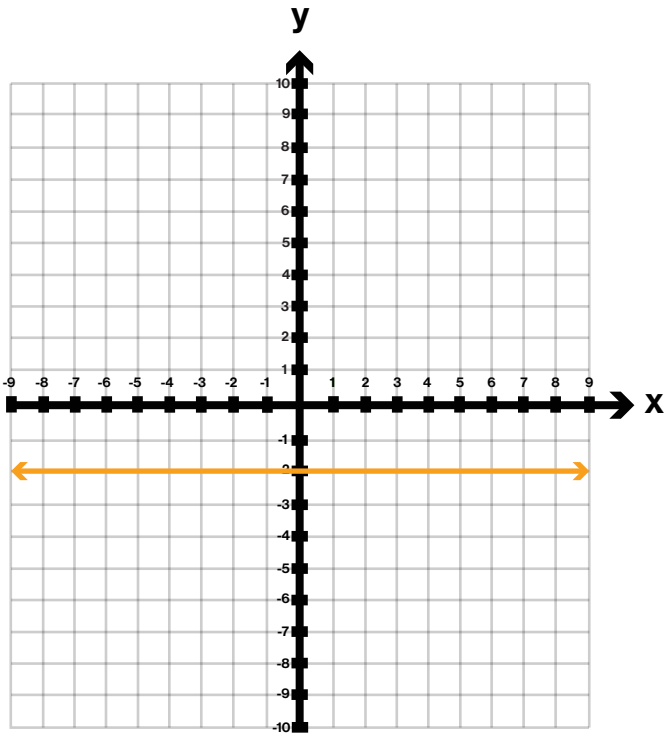
III.




Domain :

Range :

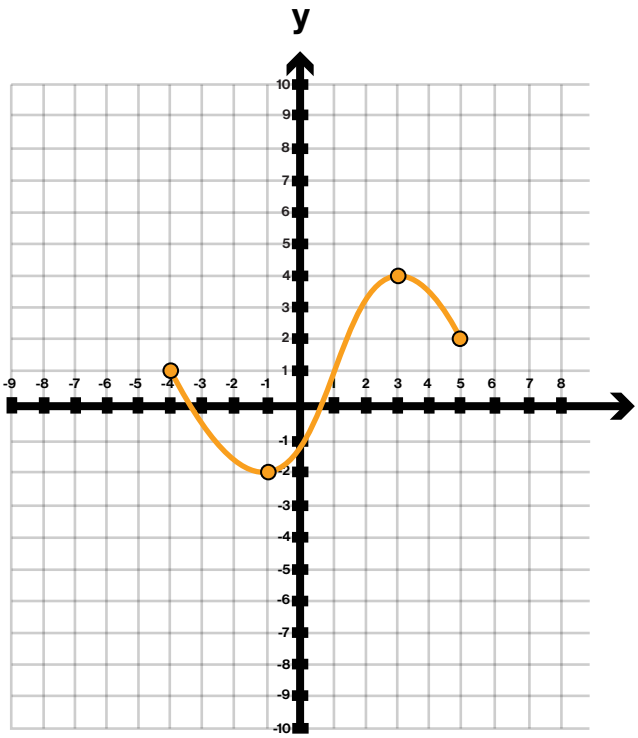
IV.




Domain :

Range :

V.

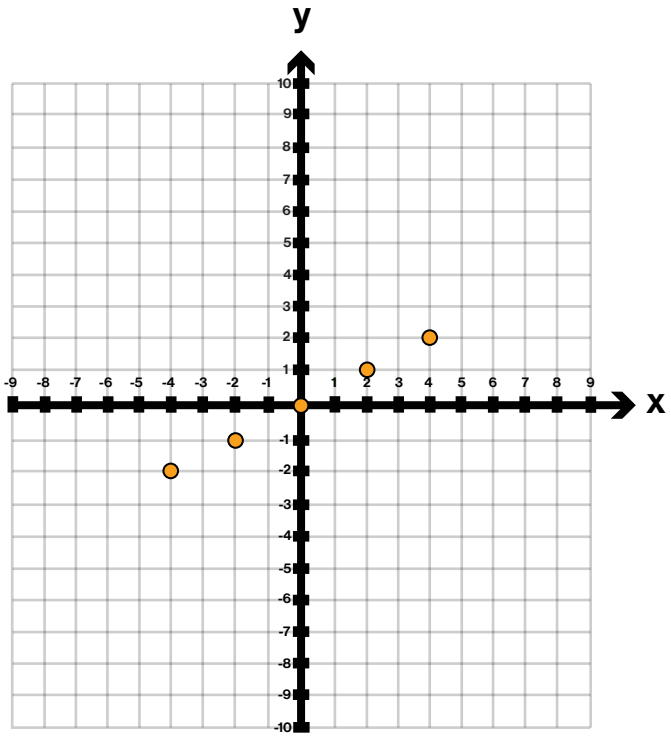



Domain :

Range :

# Functions Practice

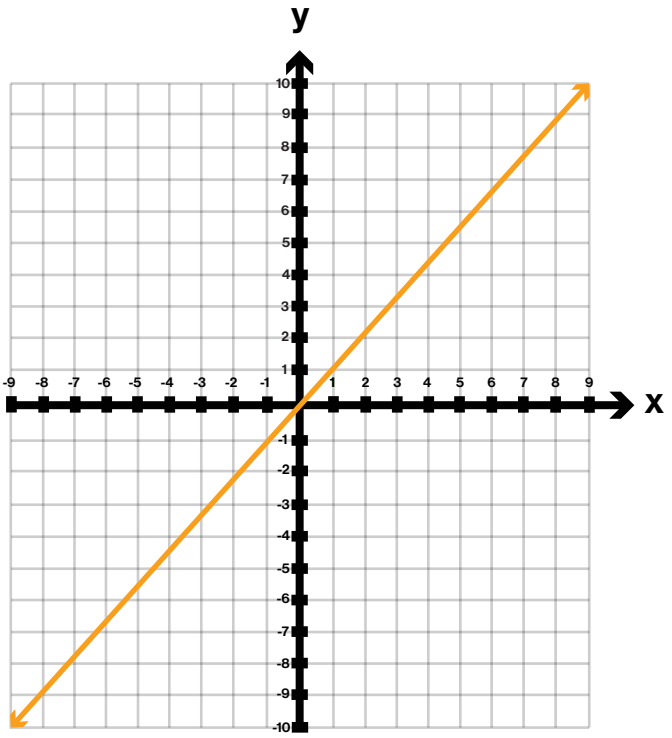
VI.




Domain :

Range :

VII.




Domain :

Range :

# Functions Practice

## Question 3

Determine the domain

I. $g(x) = \frac{5}{x - 3}$

Domain :

II. $g(x) = \frac{2x - 7}{x^2 + 8x + 7}$

Domain :

## Question 4

Solve

$m(x) = x^2 - 4$ $n(x) = 5 - x$

$(m + n)(x) \longrightarrow$ Domain :

$(m + n)(-3) \longrightarrow$

$(m - n)(x) \longrightarrow$ Domain :

$(m - n)(-3) \longrightarrow$

$(m \cdot n)(x) \longrightarrow$ Domain :

$(m \cdot n)(-3) \longrightarrow$

$(m / n)(x) \longrightarrow$

$(m / n)(-3) \longrightarrow$ Domain :

# Functions Practice

Name: **Key** Date: _____

## Question 1

Determine the function values

I. $f(x) = 2x + 6$

$f(4) = 2(4) + 6 = 14$

$f(0.5) = 2(0.5) + 6 = 7$

$f(18) = 2(18) + 6 = 42$

II. $f(x) = 5x^2 + x$

$f(3) = 5(3)^2 + (3) = 48$

$f(-3) = 5(-3)^2 + (-3) = 42$

$f(-0.5) = 5(-0.5)^2 + (-0.5) = 0.75$

III. $f(x) = \dfrac{3x^2 + 4}{2x^2 + 5}$

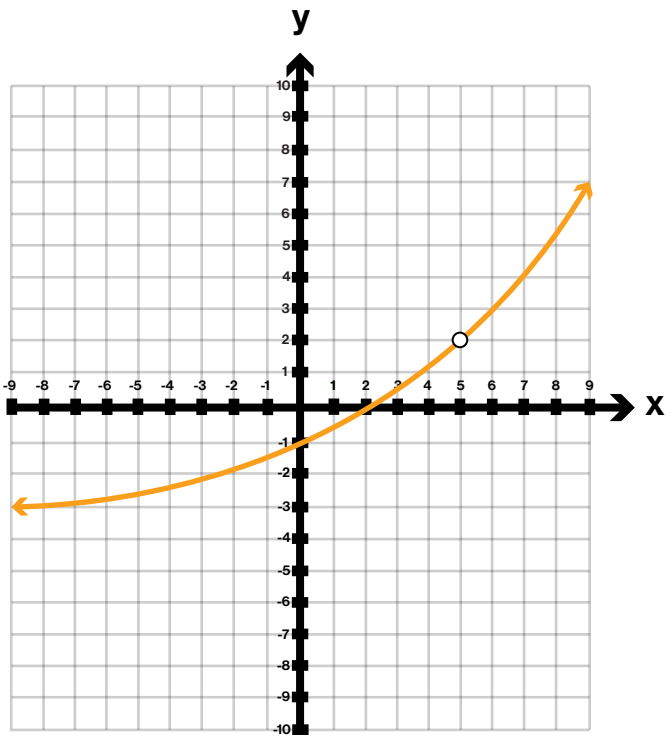
$f(9) = \dfrac{3(9)^2 + 4}{2(9)^2 + 5} = \dfrac{247}{167}$

$f(-1) = \dfrac{3(-1)^2 + 4}{2(-1)^2 + 5} = 1$

## Question 2

Determine the domain and range

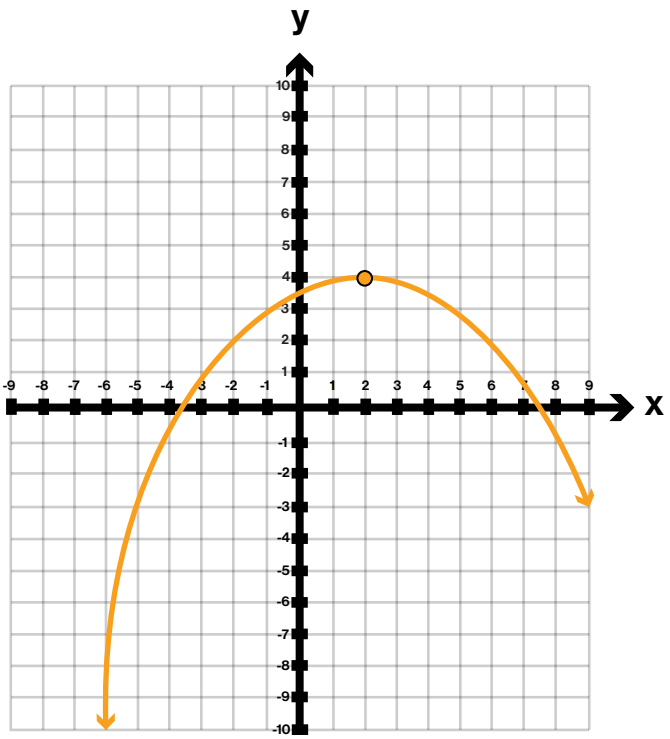
I.




Domain : $f = \{ x \mid x \text{ is a real number and } x \neq 5 \}$

Range : $f = \{ y \mid y \text{ is a real number and } y \neq 2 \}$

II.

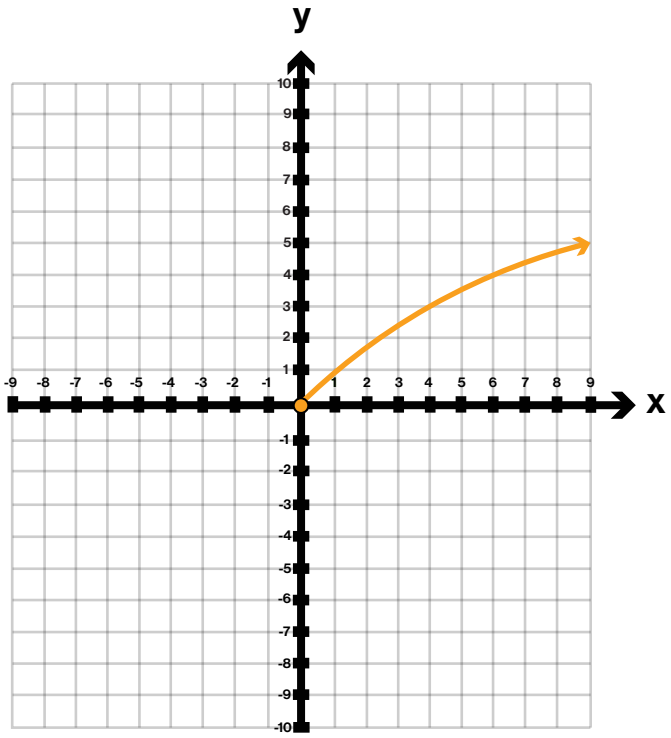



Domain : $f = \{ x \mid x \text{ is a real number} \}$

Range : $f = \{ y \mid y \leq 4 \}$

# Functions Practice

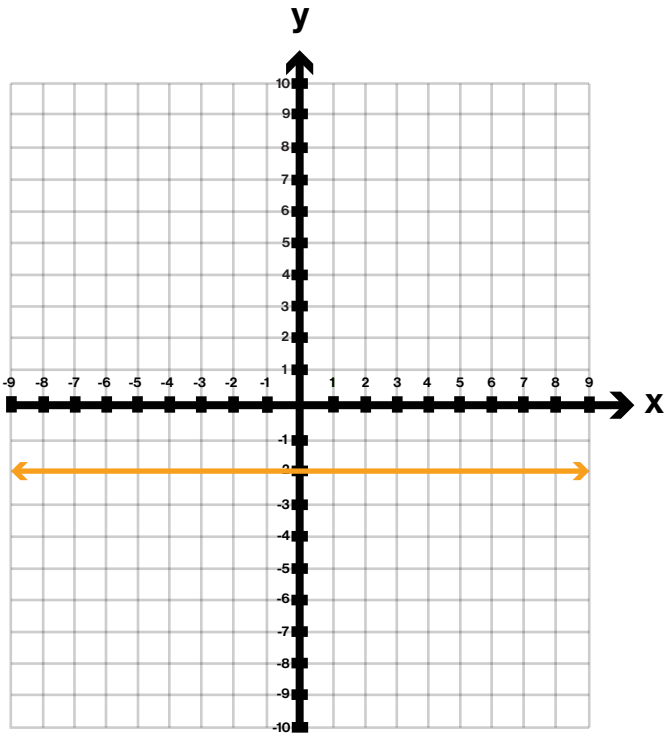
III.




Domain : f = { x | x ≥ 0}

Range : f = { y | y ≥ 0}

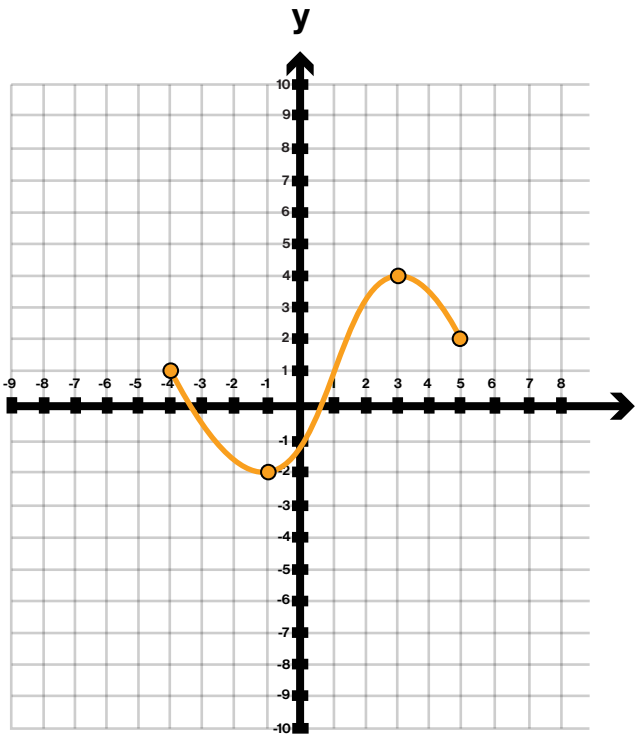
IV.




Domain : f = { x | x is a real number}

Range : f = {-2}

V.

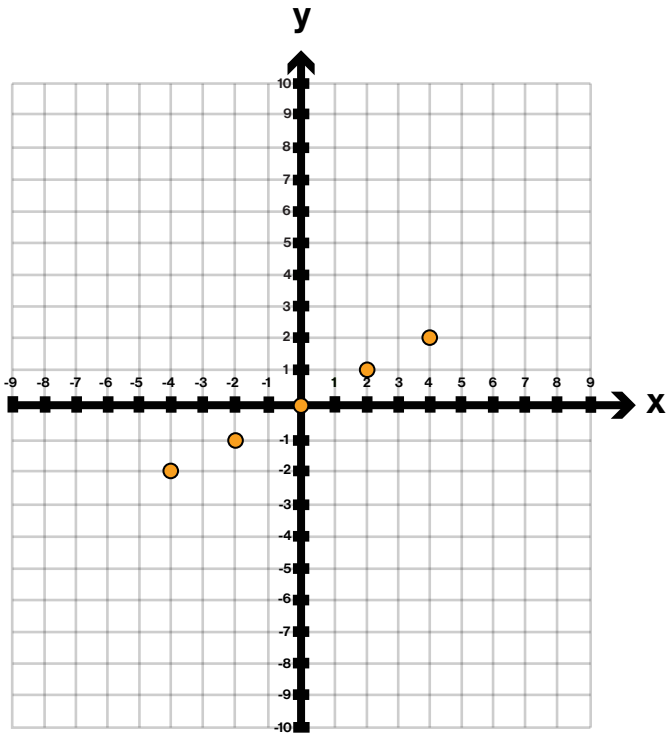



Domain : f = { x | -4 ≤ x ≤ 5}

Range : f = { y | -2 ≤ y ≤ 4}

# Functions Practice

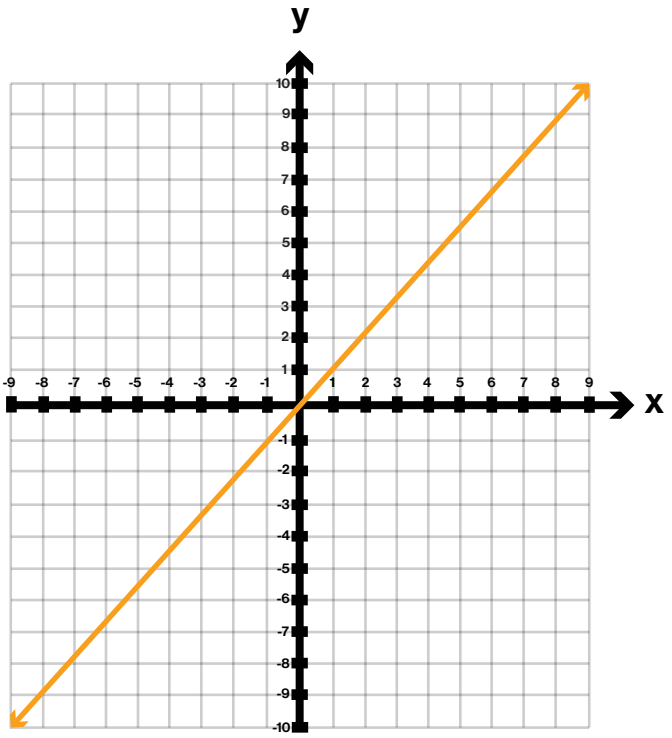
VI.




Domain : f = {-4 , -2 , 0 , 2 , 4}

Range : f = {-2 , -1 , 0 , 1 , 2}

VII.




Domain : f = { x | x is a real number}

Range : f = { y | y is a real number}

# Functions Practice

## Question 3

Determine the domain

I. $g(x) = \frac{5}{x - 3}$

Domain : $g = \{ x \mid x \text{ is a real number and } x \neq 3 \}$

II. $g(x) = \frac{2x - 7}{x^2 + 8x + 7}$

Domain : $g = \{ x \mid x \text{ is a real number and } x \neq -1, -7 \}$

## Question 4

Solve

$m(x) = x^2 - 4 \qquad n(x) = 5 - x$

$(m + n)(x) \longrightarrow x^2 - 4 + 5 - x \longrightarrow x^2 - x + 1$

Domain : $m + n\{ x \mid x \text{ is a real number} \}$

$(m + n)(-3) \longrightarrow (-3)^2 - (-3) + 1 \longrightarrow 13$

$(m - n)(x) \longrightarrow (x^2 - 4) - (5 - x) \longrightarrow x^2 - 4 + -5 + x \longrightarrow x^2 + x - 9$

Domain : $m - n\{ x \mid x \text{ is a real number} \}$

$(m - n)(-3) \longrightarrow (-3)^2 + (-3) - 9 \longrightarrow -3$

$(m \cdot n)(x) \longrightarrow (x^2 - 4)(5 - x) \longrightarrow -x^3 + 5x^2 + 4x - 20$

Domain : $m \cdot n\{ x \mid x \text{ is a real number} \}$

$(m \cdot n)(-3) \longrightarrow -(-3)^3 + 5(-3)^2 + 4(-3) - 20 \longrightarrow 40$

$(m / n)(x) \longrightarrow \frac{x^2 - 4}{5 - x} \longrightarrow \frac{(x + 2)(x - 2)}{5 - x}$

$(m / n)(-3) \longrightarrow \frac{((-3) + 2)((-3) - 2)}{5 - (-3)} \longrightarrow 5 / 8$

Domain : $m / n\{ x \mid x \text{ is a real number and } x \neq 5 \}$