

## §1.1: PREREQUISITES AND FUNCTIONS

1.] Find the sum:

$$\frac{2\pi}{3} + \frac{3}{7}\pi$$

2.] Determine if each equation below is correct or incorrect:

a.)  $2(-3)^2 = 36$

b.)  $\sqrt{2} + \sqrt{2} = 2$

c.)  $(x - 4)^2 = x^2 - 16$

d.)  $\sqrt{x^2 + 36} = x + 6$

e.)  $e^{2x} = e^x \cdot e^x$

f.)  $\sin(x + \pi) = \sin(x) + \sin(\pi)$

g.)  $\sqrt{16x} = 4\sqrt{x}$

3.] Simplify the following expressions so negative exponents and radical forms are eliminated:

a.)  $\sqrt{3^5 + 3^5 + 3^5}$

b.)  $\frac{4(x^2)^{-3} \sqrt[4]{y^3}}{4^{-2}(x^{-1})^2 y^2}$

c.)  $(x + y^{-1})^{-1}$

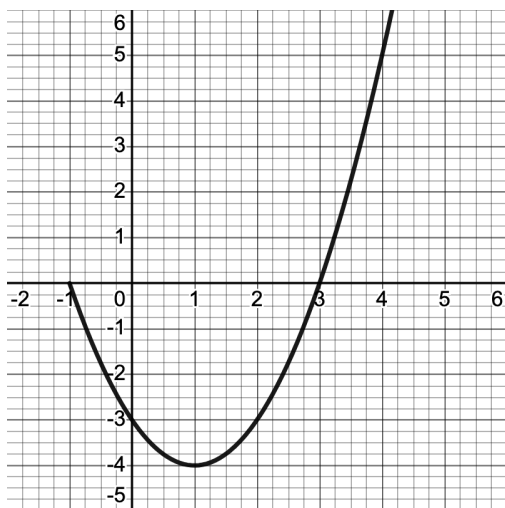
4.] Find the implied domain of the function  $f(x) = 4x^3 + 2^x - 5$ .

5.] Find the implied domain of the function  $f(x) = \frac{1}{x - 10}$ .

6.] Find the implied domain of the function  $f(x) = \sqrt{x - 4}$ .

7.] Find the implied domain of the function  $f(x) = \frac{\sqrt{24 - x}}{x^2 - x - 6}$ .

8.] Use the graph of  $y = f(x)$  below to determine the domain and range, and find the function values using the graph.



a.) Domain:

b.) Range:

c.)  $f(-2)$

d.)  $f(0)$

e.)  $f(2)$

f.)  $f$  is decreasing on

g.)  $f$  is increasing on

h.) The zeros of  $f(x)$  are

i.) is  $f$  monotonic on its domain?