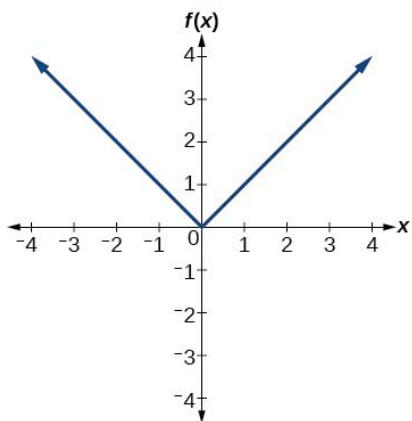


**Please complete this assignment over the summer. You will be expected to turn it in at the start of the 2022-2023 school year.**

**Directions:** Find the domain and range for the following:

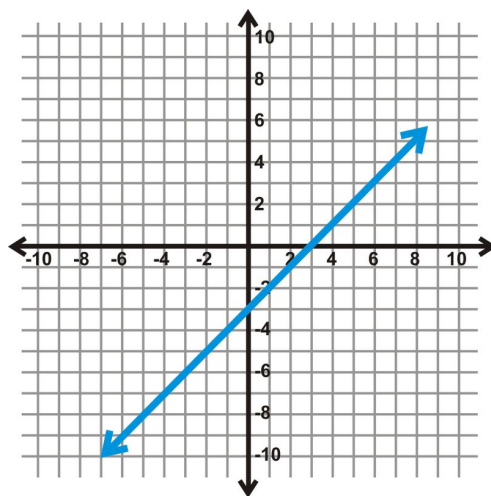
1.)



Domain: \_\_\_\_\_

Range: \_\_\_\_\_

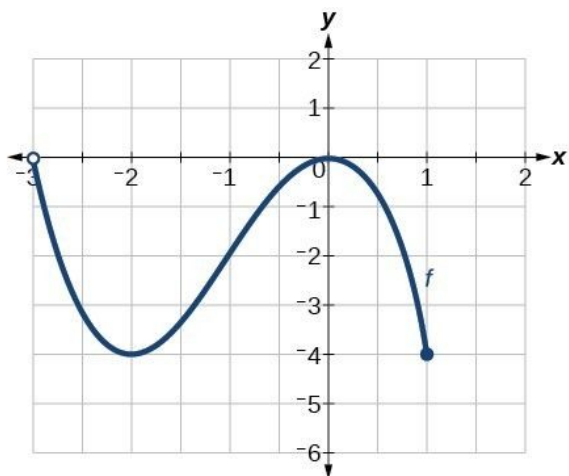
2.)



Domain: \_\_\_\_\_

Range: \_\_\_\_\_

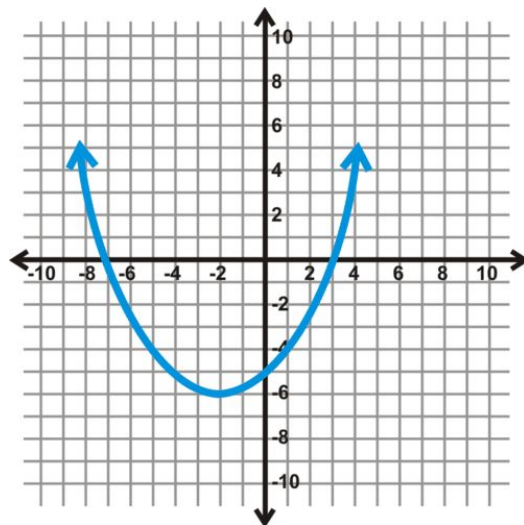
3.)



Domain: \_\_\_\_\_

Range: \_\_\_\_\_

4.)



Domain: \_\_\_\_\_

Range: \_\_\_\_\_

**Directions:** Simplify the following equations.

5.)  $y = 2x^3 + 3x^2 - 3x^3$

6.)  $y = \frac{x^5}{x^3} + x^2 - (x^4)^2$

7.)  $y = \sqrt{x}(x^3)$

8.)  $y = \frac{4x^4 - 1}{2x^2}$

9.)  $y = a^4 a^5 + \frac{a^7}{a^2}$

10.)  $y = 3x^2(4x - 5)$

11.) Given the function  $f(x) = 4x^2 - 6x + 5$ , evaluate  $f(-2)$ .

12.) Given the function  $g(m) = \sqrt{m - 4}$ , solve  $g(m) = 2$

**Directions:** Factor the following.

|                               |                      |
|-------------------------------|----------------------|
| 13.) $n^2 - 81$               | 14.) $x^2 - 6x - 16$ |
| 15.) $-42c^5 + 49c^4 - 14c^3$ | 16.) $4p^2 - 1$      |

**Directions.** Simplify the following rational expressions:

17.)  $f(x) = \frac{x^2 - x - 2}{x^2 - 2x - 3}$

18.)  $f(x) = \frac{x^2 + 5x + 6}{2x^2 + 5x + 2}$

**Directions.** Using the unit circle, solve the following trig functions:

|                                         |                     |                     |
|-----------------------------------------|---------------------|---------------------|
| 19.) $\sin\left(\frac{\pi}{2}\right) =$ | 20.) $\cos(\pi) =$  | 21.) $\tan(-\pi) =$ |
| 22.) $\sec\left(\frac{\pi}{4}\right) =$ | 23.) $\csc(2\pi) =$ | 24.) $\cot(\pi) =$  |