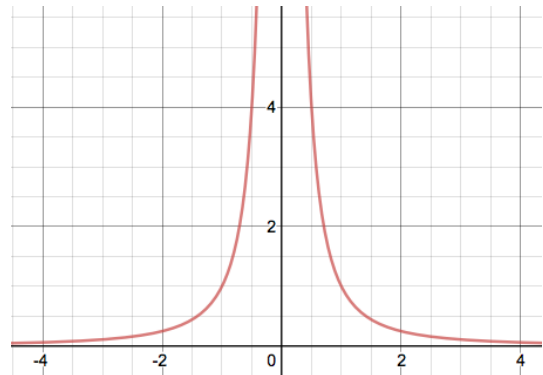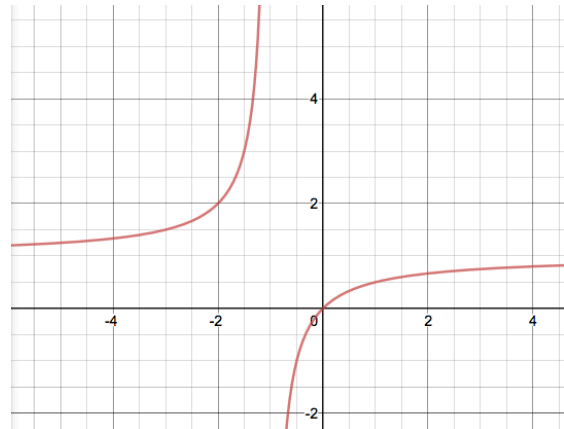# Domain and Range

1. What is the domain of a function?

2. What is the range of a function?

3. Which axis contains the values for the domain?

4. Which axis contains the values for the range?

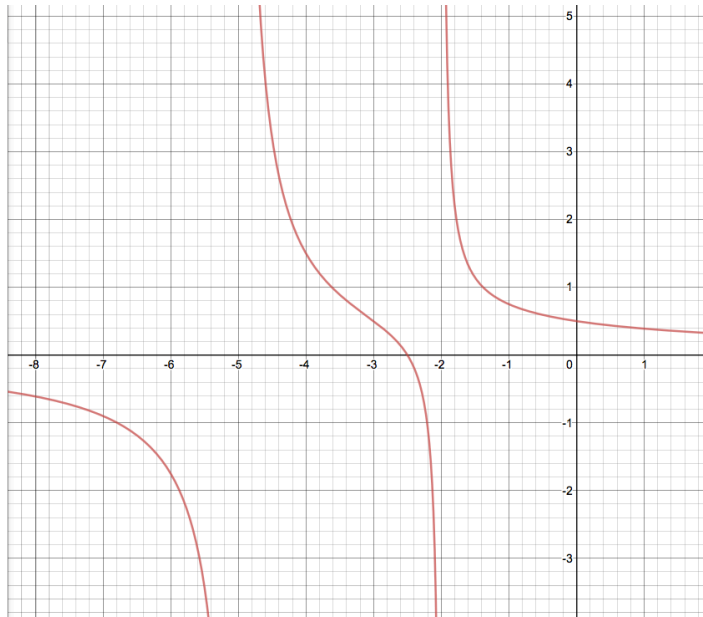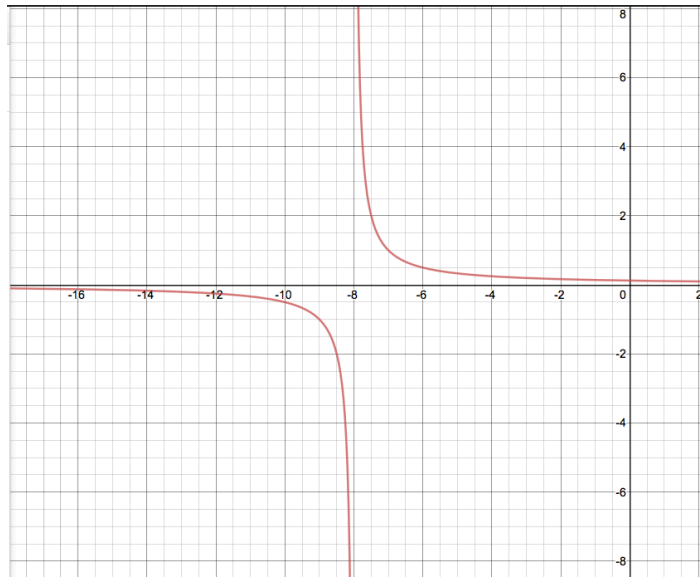5. Find the domain of the following functions.

(a) $f(x) = \frac{1}{x^2}$

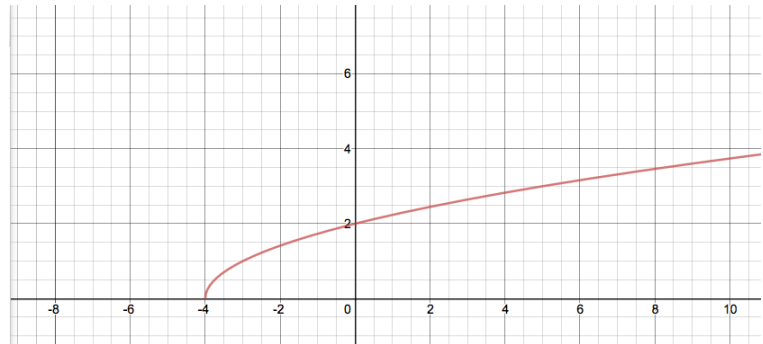(b) $f(x) = \frac{x}{x+1}$

(c) $f(x) = \frac{2x+5}{x^2+7x+10}$
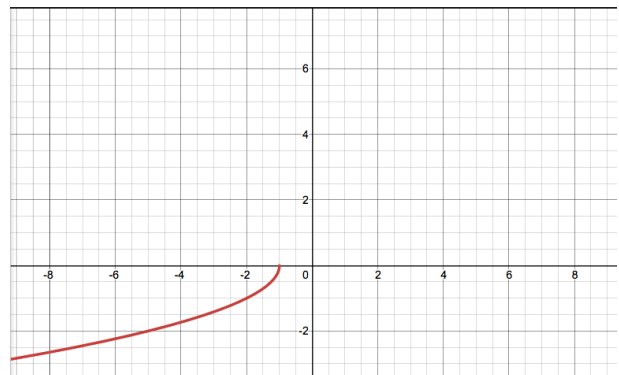

(d) $f(x) = \frac{x-8}{x^2-64}$

6. Find the domain and range of the following functions.
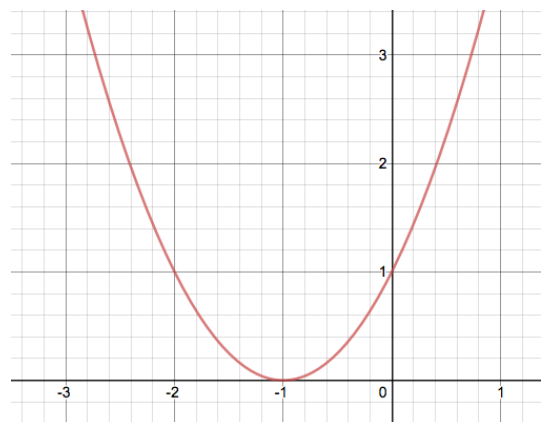
(a) $f(x) = \sqrt{x + 4}$
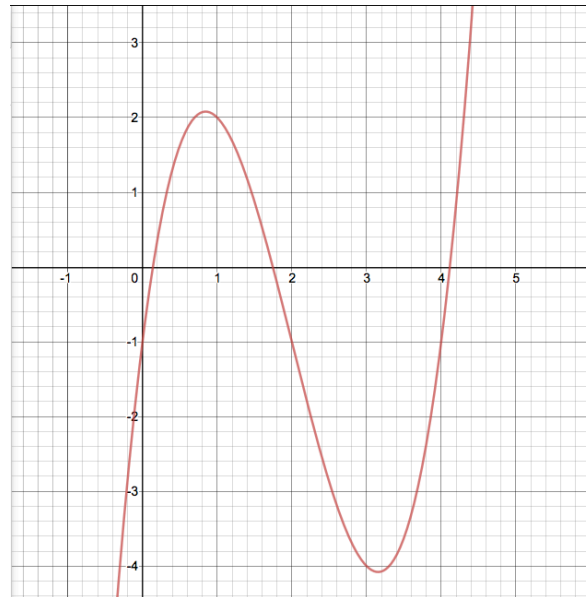

(b) $f(x) = -\sqrt{-(x + 1)}$

7. Find the domain and range of the following functions.

(a) $f(x) = x^2 + 5x + 1$

(b) $f(x) = x^3 + 5x^2 + 2x - 1$

Answers:
1. The set of all inputs
2. The set of all outputs
3. The x-axis
4. The y-axis
5. (a) $(-\infty, 0) \cup (0, \infty)$ (b) $(-\infty, -1) \cup (-1, \infty)$ (c) $(-\infty, -5) \cup (-5, -2) \cup (-2, \infty)$
(d) $(-\infty, -8) \cup (-8,8) \cup (8, \infty)$
6. (a) Domain: $[-4, \infty)$ Range: $[0, \infty)$ (b) Domain: $(-\infty, -1]$ Range: $(-\infty, 0]$
7. (a) Domain: $(-\infty, \infty)$ Range: $[0, \infty)$ (b) Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$