1. Find the difference quotient of the functions:
   a. $f(x) = \sqrt{x + 1}$
   b. $f(x) = \frac{3x}{x - 4}$
2. Find fog (x) & gof (x):
   a. $f(x) = 2x^2 - 3x, g(x) = \frac{4}{1 - x}$
   b. $f(x) = \sqrt{x}, g(x) = x - 4$
   c. $f(x) = \frac{x}{x-1}, g(x) = \frac{2x-4}{x}$
3. Find domain and range:
   a. $p(x) = \sqrt{\frac{2}{x-1}}$
   b. $p(x) = \frac{-x}{\sqrt{-x-2}}$
   c.
$$f(x) = \begin{cases} 3 & \text{if } x \leq -2 \\ -\frac{1}{3}x + \frac{7}{3} & \text{if } -2 < x < 1 \\ -3x + 5 & \text{if } x \geq 1 \end{cases}$$
   d.
$$f(x) = \begin{cases} \frac{2}{3}x + 4 & \text{if } x < 0 \\ -\frac{1}{2}x + 3 & \text{if } 0 < x < 2 \\ -\frac{1}{2}x & \text{if } x > 2 \end{cases}$$
4. Find the inverse function of the following:
   a. $g(x) = \frac{2x-4}{x}$
   b. $g(x) = \frac{4}{1 - x}$
5. $f(x) = \frac{2x}{x-2}$
   a. Is the point (1/2, - 2/3) of the graph of f?
   b. If x = 4, what is f(x)? What point is on the graph of f?

c. If f(x) = 1, what is x? What point(s) are on the graph of f ?

d. List the x-intercepts, if any, of the graph of f.

e. List the y-intercept, if there is one, of the graph of f.

6. For the given function, find the following:

   $f(x) = 2x^2 + 3$, $g(x) = 4x^3 + 1$

   a. (f + g) (5)

   b. (f x g)(x)

7. Determine whether the function is even, odd or neither:

   a. $p(x) = \frac{-x}{\sqrt{-x-2}}$

   b. f(x) = $4x^3 + 1$