Worksheet 1 - Section 1.1

(1) Sketch the graph and find the domain and range of each of the following functions.

(a) $y = 2x - 1$ (b) $y = x^2$ (c) $y = x^3$

(d) $y = \sqrt{x}$ (e) $y = |x|$ (f) $y = \frac{1}{x}$

(g) $y = \cos x$ (h) $y = \sin x$ (i) $y = \tan x$

(2) Find the domain of each of the following functions.

(a) $f(x) = \frac{x+4}{x^2+9}$

(b) $g(t) = \sqrt[3]{2t - 1}$

(c) $f(u) = \frac{u+1}{1+\frac{1}{u+1}}$

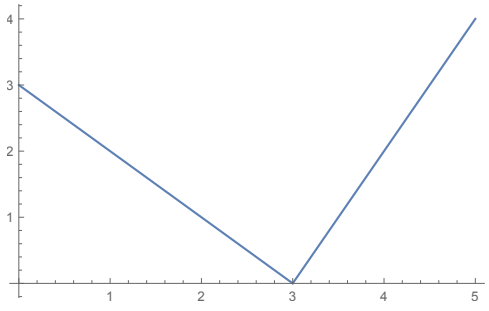
(d) $F(p) = \sqrt{2 - \sqrt{p}}$

(3) Evaluate the difference quotient of the given function.

$$f(x) = \frac{1}{x}, \qquad \frac{f(x) - f(a)}{x - a}$$

(4) Find an expression for the function whose graph is the given curve.

(a)



(b) The top half of the circle $x^2 + (y - 2)^2 = 4$.

(5) Determine whether each of the following functions is even, odd, or neither even nor odd.

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

(b) $g(x) = 1 - x^4$

(c) $h(x) = 2x - x^2$