1. Let $f(x) = x^2 + 2x$. Evaluate:

   (a) $f(2)$ (d) $f(a+b)$ (g) $\dfrac{f(x+h) - f(x)}{h}$

   (b) $f(-3)$ (e) $f(2x)$

   (c) $f(a)$ (f) $f(-x)$

2. Let $g(x) = \dfrac{1}{1-x}$. Evaluate:

   (a) $g(0)$ (c) $g(x^2)$

   (b) $g(1)$ (d) $g\left(\frac{1}{x}\right)$

3. Determine if the following are functions:

   (a)

x	y
-1	9
0	10
1	11
2	12

   (b) $\{(0,3), (-2,1), (1,5), (0,-4), (2,-1)\}$

   (c) $\{(5,7), (-1,6), (0,3), (1,6)\}$

   (d) $f(x) = \begin{cases} x+1, & x \geq 1 \\ -x-3, & x \leq 1 \end{cases}$

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

   (a) the horizontal line $y = 4$

   (b) $\{(0,6), (-1,1), (1,7), (3,-4), (2,0)\}$

   (c) $g(x) = \begin{cases} 3, & -5 \leq x < 0 \\ -x, & x > 0 \end{cases}$

   (d) The relation which assigns to each UH student the last digit of their student ID number.

5. Graph each of the following basic functions.

   (a) constant function: $f(x) = c$, where c is a real number

   (b) linear function: $f(x) = ax + b$, where a, b are real numbers

   (c) square function: $f(x) = x^2$

   (d) cube function: $f(x) = x^3$

   (e) inverse function: $f(x) = \dfrac{1}{x}$

   (f) inverse square function: $f(x) = \dfrac{1}{x^2}$

   (g) square root function: $f(x) = \sqrt{x}$

   (h) cube root function: $f(x) = \sqrt[3]{x}$

   (i) absolute value function: $f(x) = |x|$