Topic #2: More Function Review (Math 31)

FUNCTION REVIEW CONTINUED …

1. Goals (Reference: 1.1, 1.2, 1.5)
    a. Domain and Range
    b. Zeroes/Roots
    c. Combining Functions

2. Domain and Range.
3. Y-intercepts.
4. Zeroes = Roots = x-intercepts.
5. Graph Transformations:
    a. Adding outside -> Vertical (positive = up and negative = down)
    b. Adding inside -> Horizontal (positive = left and negative = right)
6. Standard functions and graphs
    a. Lines
    b. Parabolas
    c. Root Functions
    d. Rational Functions
    e. Exponential and Logarithmic Functions
7. Combining Functions.
    a. Arithmetic: Add/subtract/multiply/divide
        i. Domain = Intersection of domains
        ii. Except: For division, also rule out division by zero
        iii. Examples:
            1. 1.1 (page 32): 36 - 41
            2. $f(x) = \frac{3}{x^2} \quad and \quad g(x) = x - \frac{3}{x^2}$
    b. Composition f(g(x))
        i. Domain (for composing 2 functions given by expressions):
            1. Find domain of g
            2. Find domain of result f(g(x))
            3. Take intersection
        ii. Examples:
            1. 1.1 (page 33): 42 - 48
            2. $f(x) = x^2 \quad and \quad g(x) = \sqrt{x}$
            3. 1.1 (page 34): 56