

# Today's Plan:

**Learning Target (standard):** I will use the definition of function to evaluate functions & find the domain and range of them.

**Students will:** Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

**Teacher will:** Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

**Assessment:** Board work, homework check and homework assignment

**Differentiation:** Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

Evaluate.

$$f(x) = 3x^2 - x + 2$$

$$\textcircled{1} f(5) = 3(5)^2 - 5 + 2$$

$$= 75 - 5 + 2$$

$$f(5) = 72$$

$$\textcircled{1} f(5) =$$

$$\textcircled{2} f(-2+h) =$$

$$\textcircled{3} f(a+h) =$$

$$\textcircled{2} f(-2+h) = 3(-2+h)^2 - (-2+h) + 2$$

$$= 3(-2+h)(-2+h) + 2 - h + 2$$

$$= 3(4 - 2h - 2h + h^2) + 2 - h + 2$$

$$= \underline{12} - \underline{6h} - \underline{6h} + \underline{3h^2} + \underline{2} - \underline{h} + \underline{2}$$

$$f(-2+h) = 3h^2 - 13h + 16$$

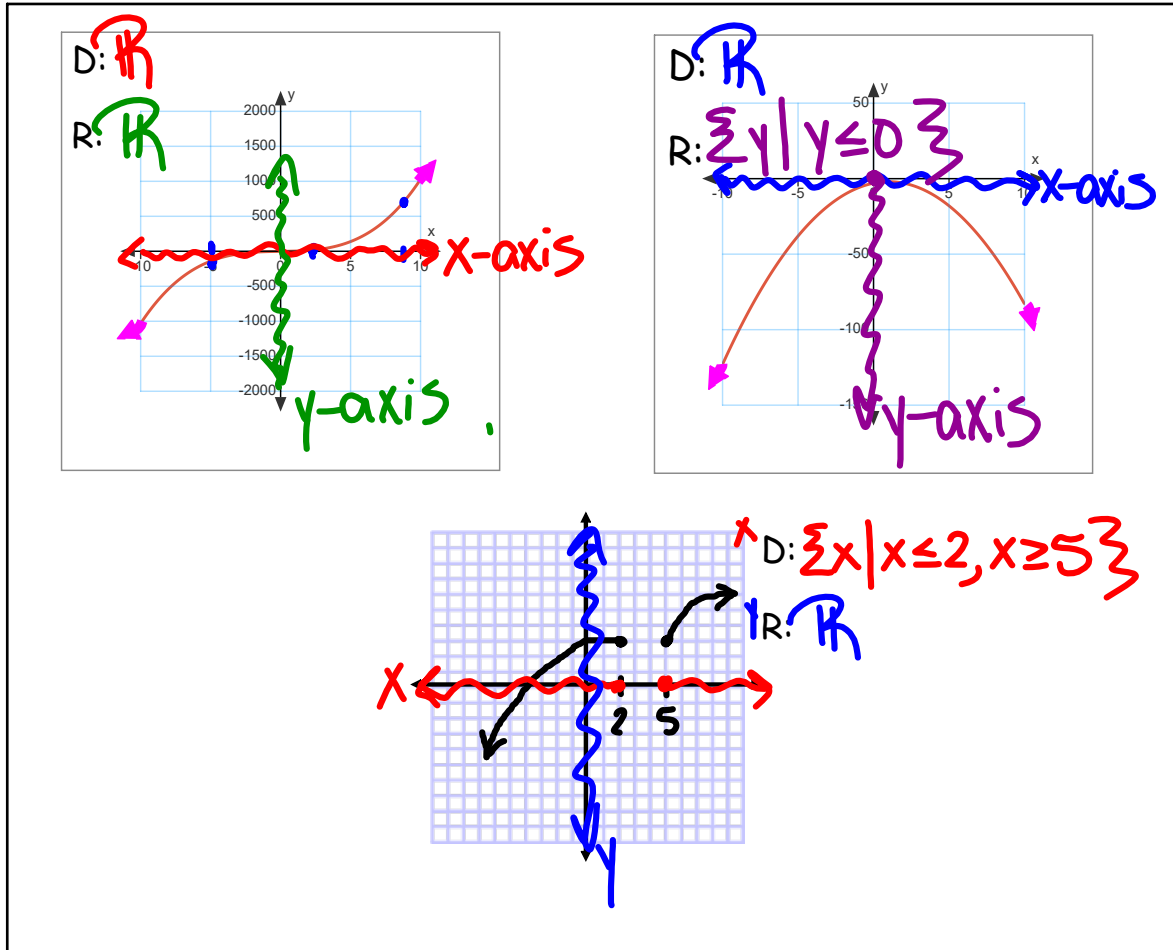
$$\textcircled{3} f(a+h) = 3(a+h)^2 - (a+h) + 2$$

$$= 3(a+h)(a+h) - a - h + 2$$

$$= 3(a^2 + ah + ah + h^2) - a - h + 2$$

$$= 3a^2 + \underline{3ah} + \underline{3ah} + 3h^2 - a - h + 2$$

$$f(a+h) = 3a^2 - a + 6ah + 3h^2 - h + 2$$



Find the domain and range of the function:

$$\{(1, 1), (2, 4), (3, 7), (4, 11), (12, 29)\}$$

$$D: \{1, 2, 3, 4, 12\}$$

$$R: \{1, 4, 7, 11, 29\}$$

$$\{(-2, 3), (3, -4), (5, 2), (0, -6)\}$$

$$D: \{-2, 0, 3, 5\}$$

$$R: \{-6, -4, 2, 3\}$$

Find the range of the function defined by the equation:

$$f(x) = \frac{x}{2} + 3 \quad \text{domain} = \{-4, -2, 0, 2, 4\}$$

$$f(-4) = -\frac{4}{2} + 3 = -2 + 3 = 1$$

$$f(-2) = -\frac{2}{2} + 3 = -1 + 3 = 2$$

$$f(0) = \frac{0}{2} + 3 = 0 + 3 = 3$$

$$f(2) = \frac{2}{2} + 3 = 1 + 3 = 4$$

$$f(4) = \frac{4}{2} + 3 = 2 + 3 = 5$$

$$R: \{1, 2, 3, 4, 5\}$$

A number in the range is given. Find an element in the domain that corresponds to the number, and write an ordered pair that belongs to the function.

$$y \quad \boxed{f(x)} = x + 5 \quad \boxed{-3} = y$$

$$-3 = x + 5$$

$$x = -8$$

$$(-8, -3)$$

$$y \quad \boxed{f(x)} = x^2 + 3 \quad \boxed{7} = y$$

$$7 = x^2 + 3$$

$$\pm\sqrt{4} = \sqrt{x^2} \quad (x, y)$$

$$x = 2, -2$$

$$(2, 7), (-2, 7)$$

Find the exclusions from the domain of the function. Use these exclusions to find the domain.

$$g(x) = \frac{3x}{x^2 - 2x - 3} = 0$$

exclusions:  $x = -1, 3$

$$\mathbb{D}: \{x \mid x \neq -1, 3\}$$

$$x^2 - 2x - 3 = 0$$

$$(x+1)(x-3) = 0$$

$$x = -1, 3$$

Assignment:

p.382 #38-72 even