

## Today's Plan:

**Learning Target (standard):** I will review functions.

**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 and complete practice problems on functions.

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

**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 review problems, practice review concepts with the aid of other students and the teacher and complete homework assignment.

p.422 #2-30 even

$$2) f(4+h) - f(4) = h^2 + 9h$$

$$4) D: \{3, 5, 7\} \& R: \{8\}$$

$$6) x = -2, 2$$

$$8) \text{exclusions} : \{x \mid x < 3\}$$

10) yes

$$12) f(g(0)) = 5$$

$$14) g(f(x)) = 6x^2 + 3x - 16$$

$$16) f^{-1}(x) = -\frac{1}{6}x + \frac{2}{3}$$

18) yes

20) no

22) no

$$24) D: \mathbb{R} \& R: \{y \mid y \geq -5\}$$

26) yes

$$28) l = 300 \text{ lumens}$$

30) 90 items

Graph. State the domain and range.

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

x	y
-2	-16
-1	-3
0	0
1	-1
2	0

$$f(-2) = -8 - 8$$

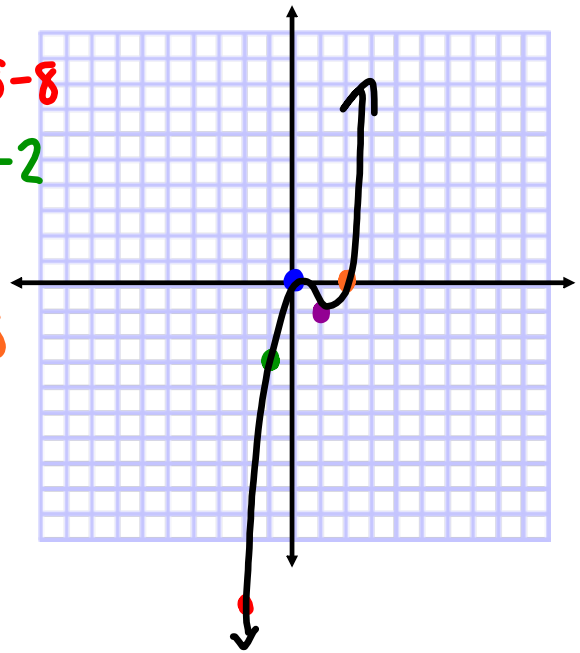
$$f(-1) = -1 - 2$$

$$f(1) = 1 - 2$$

$$f(2) = 8 - 8$$

$$D: \mathbb{R}$$

$$R: \mathbb{R}$$



The wind force ( $w$ ) on a vertical surface varies directly as the product of the area ( $A$ ) of the surface and the square of the wind velocity ( $v$ ). When the wind is blowing at 30 mph, the force on a 10-square-foot area is 45 pounds. Find the force on this area when the wind is blowing at 60 mph.

$$\textcircled{1} w = kAv^2$$

$$\textcircled{2} 30 = k(10)(45)^2$$

$$30 = 20250k$$

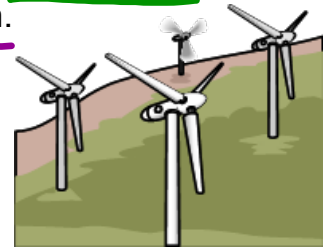
$$k = 0.001481$$

$$\textcircled{3} w = 0.001481Av^2$$

$$\textcircled{4} w = 0.001481(10)(60)^2$$

$$w = 0.01481(3600)$$

$$w = 53.316 \text{ mph}$$



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

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

$$x+1=0$$

$$x=-1$$

$$2-3x < 0$$

$$-3x < -2$$

exclusions:  $\{x \mid x = -1, x > \frac{2}{3}\}$   $x > \frac{2}{3}$

$$\mathbb{D}: \{x \mid x \leq \frac{2}{3}, x \neq -1\}$$

Graph. State the domain and range.

$$f(x) = |x| - 3$$

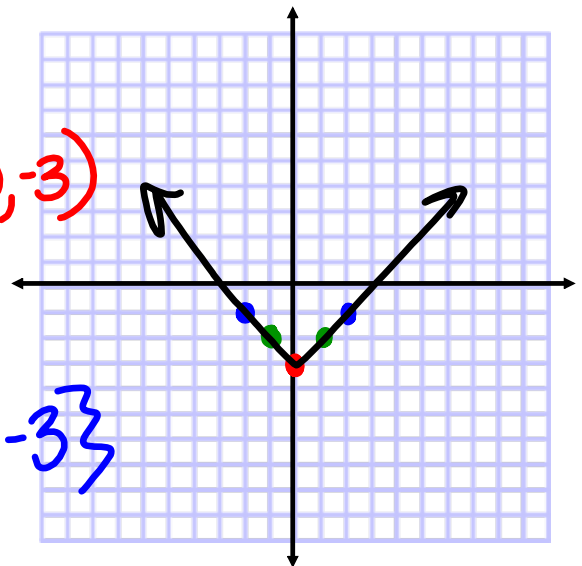
x	y
-2	-1
-1	-2
0	-3
1	-2
2	-1

$$x=0$$

$$\text{vertex: } (0, -3)$$

$$\mathbb{D}: \mathbb{R}$$

$$\mathbb{R}: \{y \mid y \geq -3\}$$



Evaluate.

$$f(x) = 2x^2 + x - 5 \quad g(x) = 3x - 1$$

$$g(f(x)) = g(2x^2 + x - 5)$$

$$= 3(2x^2 + x - 5) - 1$$

$$= 6x^2 + 3x - 15 - 1$$

$$g(f(x)) = 6x^2 + 3x - 16$$

A pool is treated with a chemical to reduce the amount of algae. The amount of algae in the pool  $t$  days after the treatment can be approximated by  $A(t) = 40t^2 - 400t + 500$ . How many days after the treatment will the pool have the least amount of algae?

Opens up  $\rightarrow$  minimum

$$t = -\frac{b}{2a} = \frac{400}{2(40)} = \frac{400}{80}$$

$$t = 5 \text{ days}$$



Find the inverse, if it exists. **Verify that the two are inverses.**

$$f(x) = -6x + 4 \quad | -1 \checkmark$$

$$y = -6x + 4$$

$$x = -6y + 4$$

$$x - 4 = -6y$$

$$-\frac{1}{6}x + \frac{2}{3} = y$$

$$f^{-1}(x) = -\frac{1}{6}x + \frac{2}{3}$$

Assignment:

p.425 #1-24

**\*TEST is tomorrow!\***