

# Honors Algebra II

## Unit 4 – Functions



**MATH, ENGINEERING,  
AND SCIENCE ACADEMY**

### Functions Homework

Name: Papi Keys

<b>4.1</b> Explain how different parameters in an equation change the position/shape of a graph
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**Short Answer:** Show all work. Any answers requiring written responses must be in complete sentences.

1. Given  $f(x) = x + 2$ , what is  $f(3)$ ?

$$f(3) = 3 + 2 \quad \boxed{f(3) = 5}$$

2. Given  $f(x) = x^2 + 4$ , what is  $f(2)$ ?

$$f(2) = (2)^2 + 4 \quad \boxed{f(2) = 8}$$

3. Is the following relation a function? Why or why not?

$$\{(-2, 2), (3, -2), (-2, 3), (-3, -1)\}$$

The relation is not a function because  $-2$  has an output of both  $2$  and  $3$ .

4. State the domain and range of the relation.

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

$$D: \{-4, -2, -1, 6\}$$

$$R: \{-3, 3\}$$

5. What is the domain of the function  $y = \frac{9}{15x-15}$ ?

$$15x - 15 \neq 0$$

+15   +15

$$\frac{15x \neq 15}{15 \quad 15}$$

$$\boxed{x \neq 1}$$

All real #'s except 1.

6. What is the domain of the function  $g(x) = \sqrt{10 - 2x}$ ?

$$10 - 2x \geq 0$$

-10   -10

$$\frac{-2x \geq -10}{-2 \quad -2}$$

$$\boxed{x \leq 5}$$

# Honors Algebra II

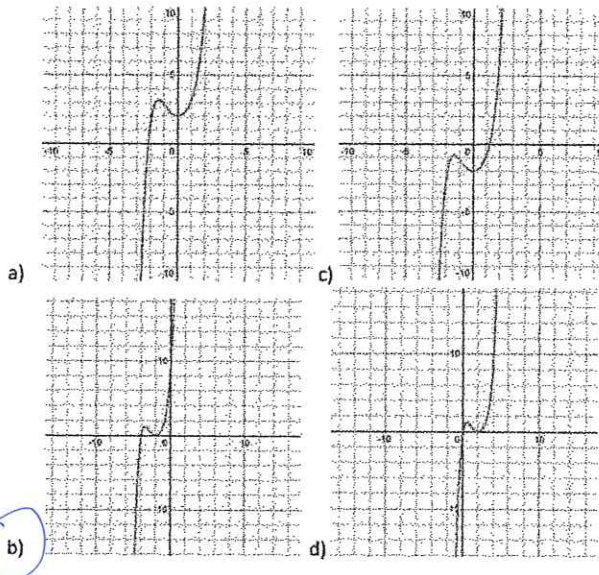
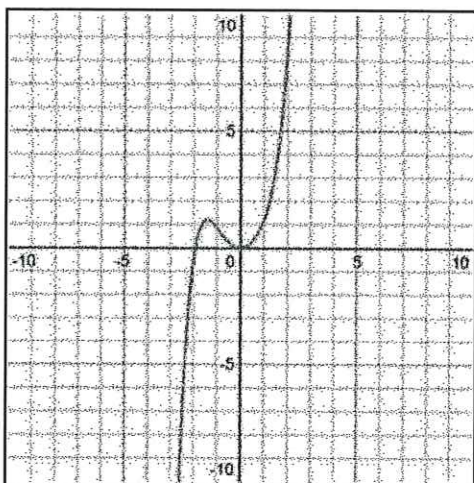
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# MATH, ENGINEERING, AND SCIENCE ACADEMY

left 2  
↓

7. If the following is the graph of  $f(x)$ , which is the graph of  $f(x + 2)$ ?



8. Describe the transformation in words applied to the function  $f(x) = x^2$ .

a.  $m(x) = -f(x + 2)$

Reflection about the x-axis  
Horizontal shift 2 units left

b.  $m(x) = f(x - 5) + 4$

Horizontal shift 5 units right  
Vertical shift 4 units up

9. Write an equation for the radical relation that results from each transformation.

a. The graph of  $f(x) = \sqrt{x}$  is translated 6 units upward with a vertical compression of  $\frac{3}{4}$

$$m(x) = \frac{3}{4}f(x) + 6 \quad \text{OR} \quad m(x) = \frac{3}{4}\sqrt{x} + 6$$

b. The graph of  $f(x) = \sqrt{x}$  is translated 2 units right with a vertical stretch of 6

$$m(x) = 6\sqrt{x-2} \quad \text{OR} \quad m(x) = 6f(x-2)$$