

SHOW ALL WORK TO RECEIVE FULL CREDIT. NO CALCULATORS.

1. (2 points each) For  $f(x) = 2x^2 - 3x$ , find the following.

(a)  $f(5)$

$$f(5) = 2(5)^2 - 3(5) = 2 \cdot 25 - 3 \cdot 5 = 50 - 15 = 35$$

(b)  $f(x+5)$   $f(x+5) = 2(x+5)^2 - 3(x+5)$

$$\begin{aligned} &= 2(x+5)(x+5) - 3x - 3 \cdot 5 \\ &= 2(x^2 + 5x + 5x + 25) - 3x - 15 \end{aligned}$$

$$= 2x^2 + 20x + 50 - 3x - 15 = 2x^2 + 17x + 35$$

(c)  $f(-x)$

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

2. (4 points each part) Let  $f(x) = 2x + 1$  and  $g(x) = -\sqrt{3x-2}$ . Find the following functions and identify their domains.

(a)  $(f-g)(x)$

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

The domain of  $f-g$  is all real numbers  
~~greater than or equal to 2/3~~  
OR  $\{x \mid x \geq 2/3\}$

(b)  $(f/g)(x)$

$$\begin{aligned} (f/g)(x) &= f(x) / g(x) = (2x+1) / (-\sqrt{3x-2}) \\ &= \frac{-2x-1}{\sqrt{3x-2}} \end{aligned}$$

The domain of  $(f/g)(x)$  is  $\{x \mid x > 2/3\}$

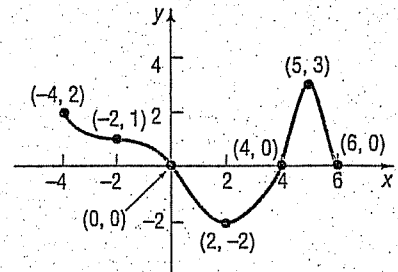
## Quiz #2

3. (6 points) Use the given graph of  $g(x)$  to answer the following.

(a) Find  $g(2)$  and  $g(-2)$ .

$$g(2) = -2$$

$$g(-2) = 1$$



(b) What is the domain of  $g$ ?

$$\{x \mid -4 \leq x \leq 6\} \text{ or } [-4, 6]$$

(c) What is the range of  $g$ ?

$$\{y \mid -2 \leq y \leq 3\} \text{ or } [-2, 3]$$

(d) What are the x-intercepts of  $g$ ?

$$\text{The x-intercepts are } x=0, x=4, \text{ and } x=6 \\ \text{or } (0, 0), (4, 0), \text{ and } (6, 0)$$

(e) What is the y-intercept of  $g$ ?

$$\text{The y-intercept is } y=0 \text{ or } (0, 0)$$

4. (1 point) EXTRA CREDIT. Is the function  $f(x)$  from question #1 an *odd* function? Why or why not?

No,  $f(x)$  is not odd, because

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