

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 $\{x \mid x > 2/3\}$

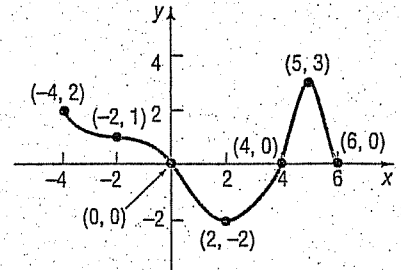
Quiz #2

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

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