

Section 10.1 Extra Practice

1. For each pair of functions, determine

$$h(x) = f(x) + g(x).$$

a) $f(x) = \sqrt{x-4}$ $g(x) = 12$

b) $f(x) = 2x + 7$ $g(x) = 5x - 11$

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

d) $f(x) = (x+4)^2$ $g(x) = -7x + 1$

2. Consider the functions $f(x) = 3x - 5$ and

$$g(x) = x^2 + 1.$$

- a) Determine the equation of the function

$$h(x) = (f+g)(x).$$

- b) Sketch the graphs of $f(x)$, $g(x)$, and $h(x)$ on the same set of axes.

- c) State the domain and range of $h(x)$.

3. For each pair of functions, determine

$$h(x) = f(x) - g(x).$$

a) $f(x) = 10$ $g(x) = |x+3|$

b) $f(x) = 2x - 5$ $g(x) = x + 8$

c) $f(x) = x^2 + x + 8$ $g(x) = 2x^2 - 3x$

d) $f(x) = 4x - 6$ $g(x) = (x-2)^2$

4. Consider the functions $f(x) = (x+1)^2$ and $g(x) = 3x$.

- a) Determine the equation of the function

$$h(x) = (f-g)(x).$$

- b) Sketch the graphs of $f(x)$, $g(x)$, and $h(x)$ on the same set of axes.

- c) State the domain and range of $h(x)$.

5. Given $f(x) = x^2 - 6$, $g(x) = \sqrt{x-2}$, and $h(x) = 2x - 1$, find each combined function and state its domain and range.

a) $y = (f+g)(x)$

b) $y = (g-h)(x)$

c) $y = (h-g)(x)$

d) $y = (f+h)(x)$

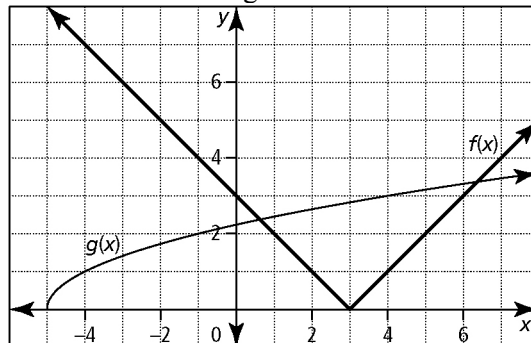
6. Consider $f(x) = x^2 - 7$ and $g(x) = 4x + 5$.

- a) Determine $h(x) = f(x) + g(x)$, and then find $h(2)$.

- b) Determine $m(x) = f(x) - g(x)$, and then find $m(1)$.

- c) Determine $p(x) = g(x) + f(x)$, and then find $p(1)$.

7. Use the graphs of $f(x)$ and $g(x)$ to evaluate each of the following.



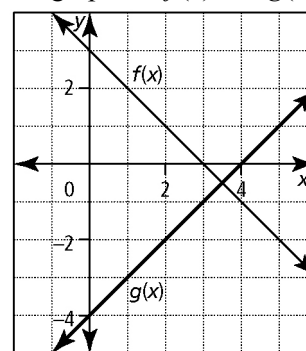
a) $(f+g)(4)$

b) $(f+g)(-1)$

c) $(f+g)(-4)$

d) $(f+g)(-5)$

8. Sketch the graph of $h(x) = (f-g)(x)$ given the graphs of $f(x)$ and $g(x)$.



9. If $h(x) = (f+g)(x)$ and $f(x) = 3x - 4$, determine $g(x)$.

a) $h(x) = x^2 + 5x - 2$

b) $h(x) = \sqrt{x-7} + 1$

c) $h(x) = \frac{9x+15}{3}$

d) $h(x) = 2x^2 - 7x + 4$

10. The cost to rent a facility for an event is \$2500 plus \$14 per person. Tickets to the event cost \$65.

- a) Write equations to represent the total cost, C , and the total revenue, R , as functions of the number, n , of people.

- b) Graph $C(n)$ and $R(n)$ on the same set of axes.

- c) How many people must attend for the organizers of the event to break even?

