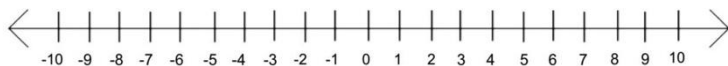


Station 1:

Let $f(x) = \sqrt{8+x}$ and $g(x) = \frac{1}{3x-6}$

- a. What is the domain of f ? Show it on the number line.



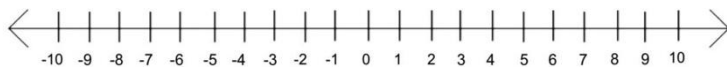
- b. What is the domain of g ? Show it on the number line.



- c. What is the range of f ?

- d. Let $h(x) = g(f(x))$. Write the equation for $h(x)$.

- e. What is the domain of h ? Show it on the number line.



Station 2:

The number of kids attending a summer camp in week w of the summer is given by $K(w)$. The number of camp counselors needed for k kids is given by $C(k)$.

- Interpret the statement $C(K(4)) = 58$ in the context of this problem.
- Interpret the meaning of $K^{-1}(126)$ in the context of this problem.
- Which function, K , C , K^{-1} , or C^{-1} would output the number of kids that could be monitored by a given number of camp counselors.

Station 3:

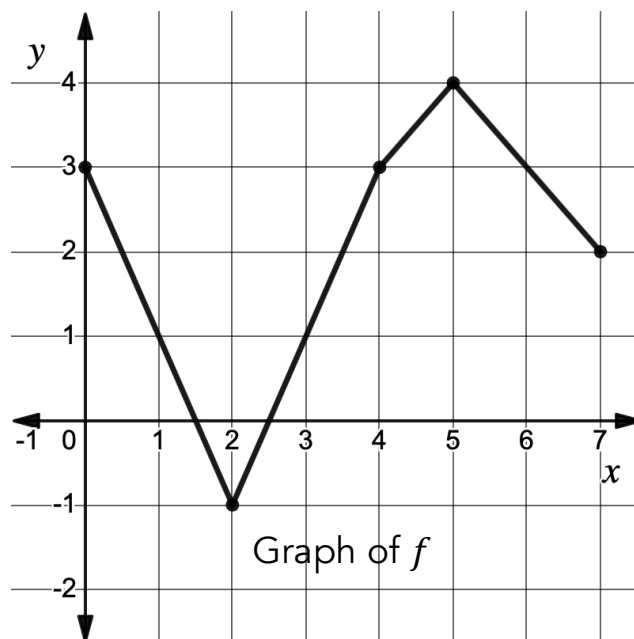
Let $f(x) = x^2 + 3$ and $g(x) = -5x + 8$.

- Find $f(g(2))$.
- Write the equation for $f(g(x))$.
- Find $g(f(2))$
- Write the equation for $g(f(x))$.

Station 4:

The graph of a function $y = f(x)$ is given below. A table of selected values for a one-to-one function h is also given. It is known that the domain of h is all real numbers. Let $g(x) = \sqrt{14x - 3}$.

x	$h(x)$
-1	7
2	4
3	5
4	-5
6	-14



- Find $h(f(4))$.
- Find $f(h(3))$.
- Find $g(f(7))$.
- Find $h^{-1}(4)$.
- Find $g^{-1}(9)$.
- Challenge! Find $g(f(h(2)))$.

Station 5

Let $h(x) = (3x + 6)^{2/3}$ for $x \geq -2$.

- Is h an invertible function on its domain? Explain why or why not.
- Using the restricted domain of h , if necessary, find h^{-1} .
- What is the domain and range of h^{-1} ?

Station 6:

A math test has a bonus question. The directions simply state that if you answer the question correctly you will receive 5 bonus points and your test grade will be increased by 7% of your score.

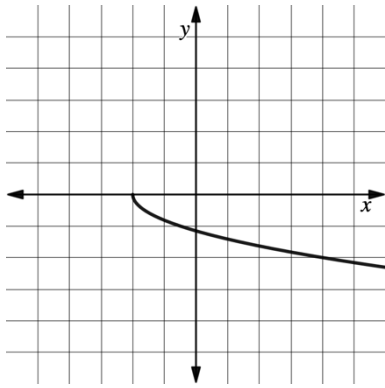
Let x be the test score before answering the bonus question.

- Write a function for $f(x)$, the score after receiving only the 5 bonus points.
- Write a function for $g(x)$, the score after receiving only the 7% grade boost.
- Find $f(g(75))$ and explain what this means in context.
- Find $g(f(75))$ and explain what this means in context.
- Which composition, $f(g(x))$ or $g(f(x))$, would YOU rather have applied to your test? Why?

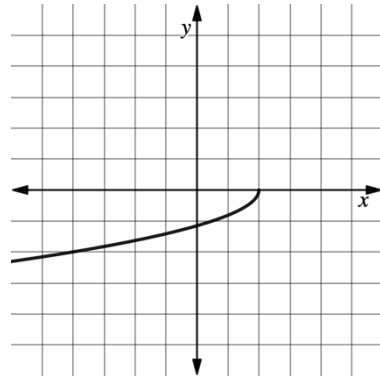
Station 7:

Given the functions $f(x) = \sqrt{x}$ and $g(x) = -\frac{2}{3}(x - 2)$, which of the following is most likely the graph of $y = f(g(x))$?

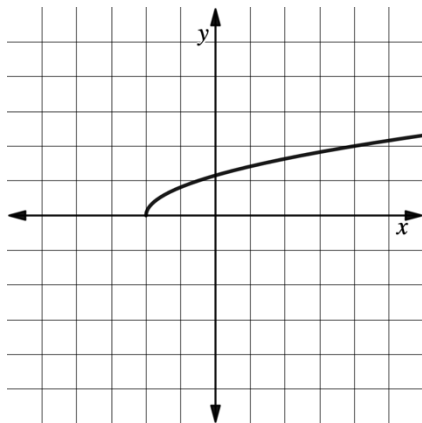
A.



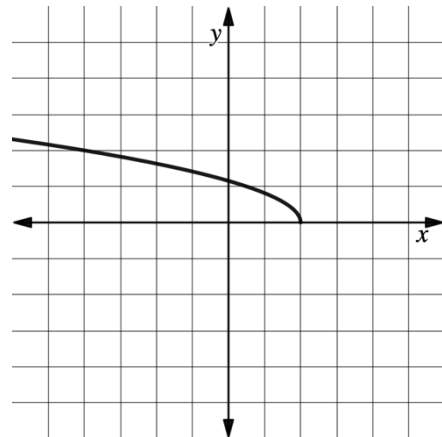
B.



C.



D.



Station 8

The complete graph of a function g is shown.
Let f be the inverse function of g .

- What is the minimum value of f ?
- Find $f(3)$.
- What is the domain of f ?

