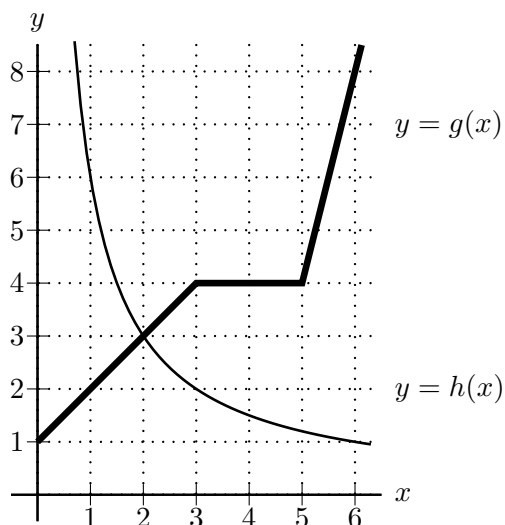


11. [9 points] The graphs of functions g and h are shown below.



a. [3 points] Determine whether each of the following statements is TRUE or FALSE.

(i) The function g is invertible on the domain $[1, 6]$.

True False

(ii) The function h is invertible on the domain $[1, 6]$.

True False

(iii) The function defined by $g(x) - h(x)$ is an increasing function on the domain $[1, 6]$.

True False

b. [2 points] Evaluate $g(h(3))$ and $h(3)g(3)$.

Solution: $g(h(3)) = g(2) = 3$ and $h(3)g(3) = 2 \cdot 4 = 8$.

Answers: $g(h(3)) = \underline{\hspace{2cm} 3 \hspace{2cm}}$ $h(3)g(3) = \underline{\hspace{2cm} 8 \hspace{2cm}}$

Some values for an invertible function f are given in the table below. Use the table together with the graphs of g and h above to answer the questions that follow.

x	0	1	3	5	6
$f(x)$	1	3	4	6	8

c. [2 points] Evaluate $f^{-1}(g(2))$.

Solution: $f^{-1}(g(2)) = f^{-1}(3) = 1$.

Answer: $f^{-1}(g(2)) = \underline{\hspace{2cm} 1 \hspace{2cm}}$

d. [2 points] If j is the function defined by $j(x) = 2f(x + 1)$, evaluate $j(4)$.

Solution: $j(4) = 2f(4 + 1) = 2f(5) = 2(6) = 12$.

Answer: $j(4) = \underline{\hspace{2cm} 12 \hspace{2cm}}$