Combining Functions Graphically Assignment

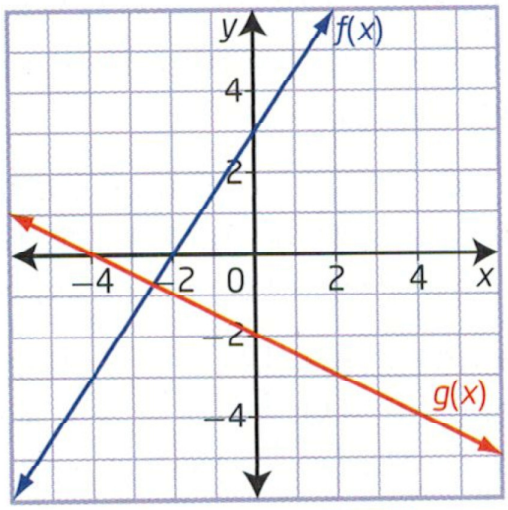
1. Using the graph given:

   i. Sketch the graph of each combined function (you may need to extend the graph)
   ii. Determine the domain and range of the combined function

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

   b) $j(x) = (f - g)(x)$

   c) $s(x) = (g - f)(x)$



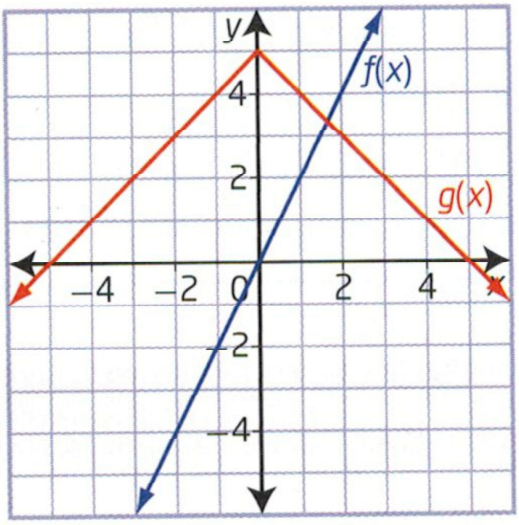
2. Using the graph given:

   i. Sketch the graph of each combined function (you may need to extend the graph)
   ii. Determine the domain and range of the combined function

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

   b) $j(x) = (f - g)(x)$

   c) $s(x) = (g - f)(x)$

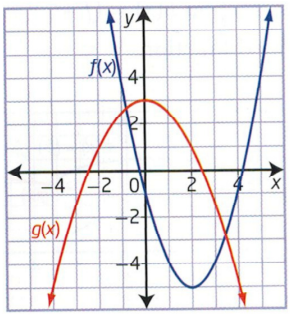


3. Use the graphs of $f(x)$ and $g(x)$ to determine which graph matches each combined function.

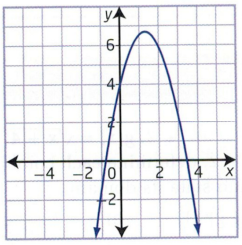
a) $h(x) = (f + g)(x)$

b) $j(x) = (f - g)(x)$

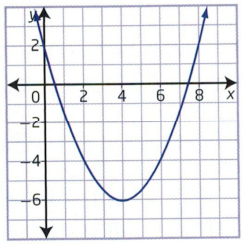
c) $s(x) = (g - f)(x)$



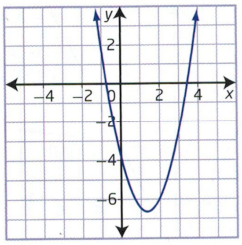
A



B



C

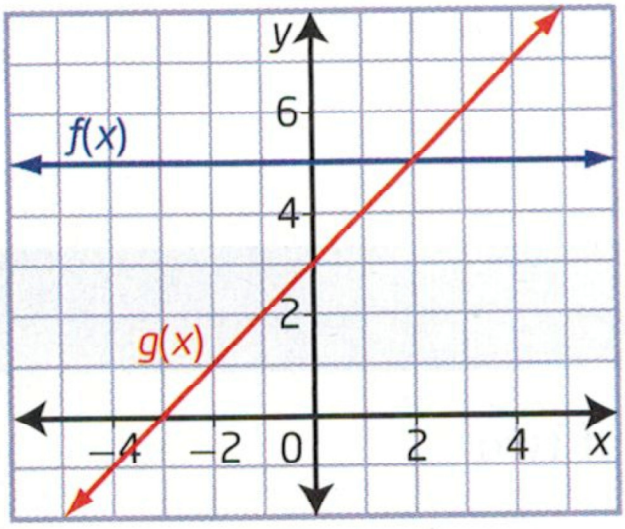


4. Using the graph given:

   i. Sketch the graph of each combined function (you may need to extend the graph)
   ii. Determine the domain and range of the combined function

a) $h(x) = f(x) \cdot g(x)$

b) $j(x) = \frac{f(x)}{g(x)}$

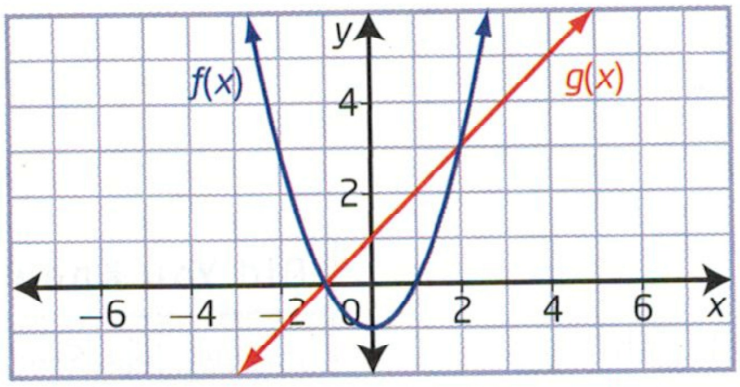


5. Using the graph given:

   i. Sketch the graph of each combined function (you may need to extend the graph)
   ii. Determine the domain and range of the combined function

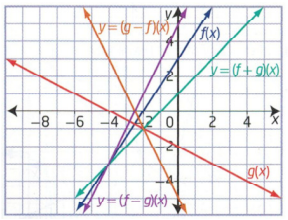
a) $h(x) = \frac{g(x)}{f(x)}$

b) $j(x) = \frac{f(x)}{g(x)}$

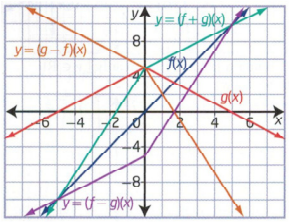


Answers

1. a) $D: x \in \mathbb{R}, R: y \in \mathbb{R}$
   b) $D: x \in \mathbb{R}, R: y \in \mathbb{R}$
   c) $D: x \in \mathbb{R}, R: y \in \mathbb{R}$

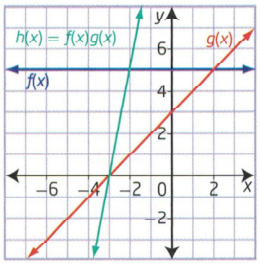


2. a) $D: x \in \mathbb{R}, R: y \in \mathbb{R}$
   b) $D: x \in \mathbb{R}, R: y \in \mathbb{R}$
   c) $D: x \in \mathbb{R}, R: y \in \mathbb{R}$

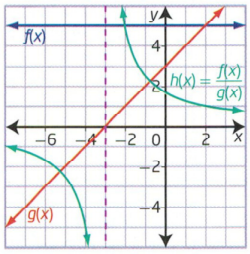


3. a) B b) C c) A

4. a) $D: x \in \mathbb{R}, R: y \in \mathbb{R}$



   b) $D: x \neq -3, R: y \neq 0$



5. a) $D: x \neq -1, 2, R: y \neq 0$
   b) $D: x \neq -1, R: y \neq -2$