

Basic Mathematics - Quiz 3 Solution

We consider the function f from $\mathbb{R} \setminus \{5/3\}$ to \mathbb{R} defined by

$$f(x) = \frac{2x + 3}{3x - 5}$$

and the function g defined by

$$g(x) = x^2 - 7.$$

Evaluate and simplify as much as possible :

$$f \circ g(x) = f(g(x)) = \frac{2g(x) + 3}{3g(x) - 5} = \frac{2(x^2 - 7) + 3}{3(x^2 - 7) - 5} = \frac{2x^2 - 14 + 3}{3x^2 - 21 - 5} = \frac{2x^2 - 11}{3x^2 - 26}.$$