Exercise 202

For the following exercises, use composition to determine which pairs of functions are inverses.

$$f(x) = \frac{2}{3}x + 2, \ g(x) = \frac{3}{2}x + 3$$

Solution

Take the composition of f and g and see if it results in x.

$$f \circ g = f(g(x)) = f\left(\frac{3}{2}x + 3\right) = \frac{2}{3}\left(\frac{3}{2}x + 3\right) + 2 = (x + 2) + 2 \neq x$$

Therefore, f and g are not inverses; they are not reflections of one another about the line $y = x$.