Exercise 13

Differentiate the function.

$$F(r) = \frac{5}{r^3}$$

Solution

Rewrite the given function.

$$F(r) = 5r^{-3}$$

Take the derivative of this function.

$$F'(r) = \frac{d}{dr}(5r^{-3})$$

Use the constant multiple rule.

$$F'(r) = 5\frac{d}{dr}(r^{-3})$$

Use the power rule.

$$F'(r) = 5(-3r^{-4})$$

Therefore,

$$F'(r) = -15r^{-4}.$$