

Exercise 16

Evaluate the limit, if it exists.

$$\lim_{x \rightarrow -1} \frac{2x^2 + 3x + 1}{x^2 - 2x - 3}$$

Solution

Factor the numerator and denominator and cancel the common factors.

$$\lim_{x \rightarrow -1} \frac{2x^2 + 3x + 1}{x^2 - 2x - 3} = \lim_{x \rightarrow -1} \frac{(2x + 1)(x + 1)}{(x - 3)(x + 1)} = \lim_{x \rightarrow -1} \frac{2x + 1}{x - 3} = \frac{-1}{-4} = \frac{1}{4}$$