Answer on Question #85671 – Math – Algebra

Question

Resolve (6x-1)/((x-3) (x+1)) into partial fractions

Solution

Let $\dfrac{6x-1}{(x-3)(x+1)} = \dfrac{A}{x-3} + \dfrac{B}{x+1} \mid A, B \in \mathbb{R}$

Then:

$$\frac{A}{x-3} + \frac{B}{x+1} = \frac{(A+B)x + (A-3B)}{(x-3)(x+1)} = \frac{6x-1}{(x-3)(x+1)} \Leftrightarrow$$

$$\Leftrightarrow \begin{cases} A+B = 6 \\ A-3B = -1 \end{cases} \Leftrightarrow \begin{cases} A = 4.25 \\ B = 1.75 \end{cases} \Leftrightarrow \frac{6x-1}{(x-3)(x+1)} = \frac{4.25}{x-3} + \frac{1.75}{x+1}$$

Answer: $\dfrac{6x-1}{(x-3)(x+1)} = \dfrac{4.25}{x-3} + \dfrac{1.75}{x+1}.$