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## Rational Expressions | Past Paper Question |Edexcel C3 January 2010 Q1

$$\begin{aligned} \frac{x+1}{3x^2-3} - \frac{1}{3x+1} &\equiv \frac{x+1}{3(x^2-1)} - \frac{1}{3x+1} & \left| \begin{array}{l} \frac{1}{3(x-1)} \times \frac{(3x+1)}{(3x+1)} \\ \frac{1}{3x+1} \times \frac{3(x-1)}{3(x-1)} \end{array} \right. \\ &= \frac{\cancel{(x+1)}}{3(\cancel{x+1})(x-1)} - \frac{1}{3x+1} \\ &= \frac{1}{3(x-1)} - \frac{1}{3x+1} \\ &\equiv \frac{1(3x+1) - 3(x-1)}{3(x-1)(3x+1)} \\ &\equiv \frac{3x+1-3x+3}{3(x-1)(3x+1)} \\ &\equiv \frac{4}{3(x-1)(3x+1)} \end{aligned}$$

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