Repeated linear factors

Suppose we wished to express $\frac{2x+1}{(x+1)^2}$ as $\frac{A}{x+1}+\frac{B}{x+1}$. What's the problem?

Q Split $\frac{11x^2+14x+5}{(x+1)^2(2x+1)}$ into partial fractions.

$$\frac{11x^2+14x+5}{(x+1)^2(2x+1)} \equiv \frac{A}{x+1}+\frac{B}{(x+1)^2}+\frac{C}{2x+1}$$

The problem is resolved by having the factor **both squared and non-squared.**

Test Your Understanding

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$$\frac{9x^2}{(x-1)^2(2x+1)} = \frac{A}{(x-1)}+\frac{B}{(x-1)^2}+\frac{C}{(2x+1)}.$$

Find the values of the constants A, B and C. **(4)**