

**YOU & MATHS** Making an identity Make the following equalities into identities.

a.  $6x + 2 = \square + \frac{5}{3} - \frac{1}{2}x$

b.  $\frac{1}{3} + 2x = x + \square + x^2$

a. We need the second term to equal the first, so we can add  $\frac{13}{2}x + \frac{1}{3}$  to the second term and get

$$6x + 2 = \frac{13}{2}x + \frac{1}{3} + \frac{5}{3} - \frac{1}{2}x.$$

You can check this as follows:

$$\frac{13}{2}x + \frac{1}{3} + \frac{5}{3} - \frac{1}{2}x = \frac{12}{2}x + \frac{6}{3} = 6x + 2.$$

b. The second equality can also be transformed into an identity. We need the second term to equal  $\frac{1}{3} + 2x$ , so we can add  $\frac{1}{3} + x$  and then we can subtract  $x^2$  to the second term. This way we get:

$$\frac{1}{3} + 2x = x + \frac{1}{3} + x - x^2 + x^2.$$