

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

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

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

- 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:

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