Exercise 6

Find the missing power in the following calculation: $5^{1/3} \cdot 5^{\blacksquare} = 5$.

Solution

Let the unknown exponent be x.

$$5^{1/3} \cdot 5^x = 5$$

To multiply two terms with the same base, add the exponents.

$$5^{\frac{1}{3}+x} = 5^1$$

Match the exponents on both sides.

$$\frac{1}{3} + x = 1$$

Solve for x.

$$x = 1 - \frac{1}{3}$$

The missing power is therefore

$$x = \frac{2}{3}.$$