

YOU & MATHS **Equal radicals** If $\sqrt{x} = \sqrt[3]{2}$, then x^3 is equal to what?

- ☐ **A** $\sqrt{2}$
- ☐ **B** 2
- ☐ **C** $\sqrt[3]{4}$
- ☐ **D** 4
- ☐ **E** $3\sqrt[3]{2}$

It is helpful to rewrite the radicals using rational exponents:

$$\sqrt[3]{2} = 2^{\frac{1}{3}},$$

$$\sqrt{x} = x^{\frac{1}{2}}.$$

So we can rewrite the equality

$$\sqrt{x} = \sqrt[3]{2} \rightarrow x^{\frac{1}{2}} = 2^{\frac{1}{3}},$$

and using the laws of exponents, we get:

$$x^{\frac{1}{2}} = 2^{\frac{1}{3}} \rightarrow \left(x^{\frac{1}{2}}\right)^6 = \left(2^{\frac{1}{3}}\right)^6 \rightarrow x^3 = 2^2 = 4.$$