

YOU & MATHS **Equivalent radicals** The number $2\sqrt{6}$ is *not equal* to:

☐ **A** $\sqrt{6} + \sqrt{6}$.

☐ **B** $\sqrt{3}\sqrt{8}$.

☐ **C** $2\sqrt{3} + 2\sqrt{3}$.

☐ **D** $\frac{12}{\sqrt{6}}$.

☐ **E** any of these.

Let us modify every expression in order to understand whether it is equal to $2\sqrt{6}$ or not.

Considering option A, the equality $\sqrt{6} + \sqrt{6} = 2\sqrt{6}$ holds.

Considering option B, the equality $\sqrt{3}\sqrt{8} = 2\sqrt{6}$ is true; in fact:

$$\sqrt{3} \cdot \sqrt{8} = \sqrt{3} \cdot 2\sqrt{2} = 2\sqrt{3} \cdot \sqrt{2} = 2\sqrt{6}.$$

Considering option C, $2\sqrt{3} + 2\sqrt{3} \neq 2\sqrt{6}$; in fact:

$$2\sqrt{3} + 2\sqrt{3} = 4\sqrt{3} \neq 2\sqrt{2} \cdot \sqrt{3} = 2\sqrt{6},$$

since $4 \neq 2\sqrt{2}$.

Finally, considering option D, $\frac{12}{\sqrt{6}} = 2\sqrt{6}$ is true; in fact:

$$\frac{12}{\sqrt{6}} = \frac{\sqrt{6}}{\sqrt{6}} \cdot \frac{12}{\sqrt{6}} = \sqrt{6} \cdot \frac{12}{6} = 2\sqrt{6}.$$

Therefore the correct option is C.