Rationalising the Denominator (A)

Make the denominator a rational number.

So no irrational numbers like $\sqrt{3}$, $\sqrt{5}$ or $2+\sqrt{3}$ in the denominator.

Simplify $\frac{1}{\sqrt{2}}$ by multiplying it by $\frac{\sqrt{2}}{\sqrt{2}}$.

Simplify $\frac{1}{3+\sqrt{2}}$ by multiplying it by $\frac{3-\sqrt{2}}{3-\sqrt{2}}$.

Simplify $\frac{1}{3-\sqrt{2}}$ by multiplying it by $\frac{3+\sqrt{2}}{3+\sqrt{2}}$.

Simplify $\dfrac{2+\sqrt{2}}{\sqrt{3}}$ by rationalising the denominator.

$$\frac{2+\sqrt{2}}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{2\sqrt{3}+\sqrt{6}}{3}$$

Simplify $\dfrac{-6}{4+\sqrt{10}}$ by rationalising the denominator.

$$\frac{-6}{4+\sqrt{10}} \times \frac{4-\sqrt{10}}{4-\sqrt{10}} = \frac{-24+6\sqrt{10}}{16-10}$$

$$= \frac{-24+6\sqrt{10}}{6}$$

$$= -4+\sqrt{10}$$