

Rationalising Surds (1)



Rationalising Surds (1)

1. State whether each is true or false.

a) $\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}}$

b) $\frac{1}{\sqrt{7}} = \frac{\sqrt{7}}{7}$

c) $\frac{1}{\sqrt{6}} = \frac{2\sqrt{3}}{6}$

d) $\frac{5}{\sqrt{6}} = \frac{5\sqrt{6}}{6}$

e) $\frac{10}{\sqrt{6}} = \frac{10\sqrt{6}}{6}$

Write the correct answer for any false statements.

2. Rationalise and simplify

a) $\frac{1}{\sqrt{3}}$

b) $\frac{5}{\sqrt{7}}$

c) $\frac{2}{\sqrt{6}}$

d) $\frac{3}{\sqrt{6}}$

e) $\frac{4}{\sqrt{6}}$



Rationalising Surds (1)

3. a) Rationalise

$$2 \div \sqrt{11}$$

b) Find the missing values.

$$\frac{3}{\sqrt{2}} = \frac{3}{\sqrt{2}} \times \frac{\boxed{}}{\sqrt{2}} = \frac{3\sqrt{2}}{\boxed{}}$$

c) Rationalise and simplify.

$$\frac{2}{\sqrt{2}}$$

4. Rationalise

$$\frac{5\sqrt{3}}{2\sqrt{2}} = \frac{5\sqrt{3}}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \boxed{}$$

5. Express $\frac{8\sqrt{3}}{2\sqrt{2}}$ in the form $a\sqrt{b}$

Where a and b are integers.

6. Show that $\frac{3\sqrt{10}}{4\sqrt{2}}$ is equal to $\frac{3\sqrt{5}}{4}$



Answers



Rationalising Surds (1)

1. State whether each is true or false.

a) $\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{\sqrt{2}}$ F $\frac{\sqrt{2}}{2}$

b) $\frac{1}{\sqrt{7}} = \frac{\sqrt{7}}{7}$ T

c) $\frac{1}{\sqrt{6}} = \frac{2\sqrt{3}}{6}$ F $\frac{\sqrt{6}}{6}$

d) $\frac{5}{\sqrt{6}} = \frac{5\sqrt{6}}{6}$ T

e) $\frac{10}{\sqrt{6}} = \frac{10\sqrt{6}}{6}$ True, but simplifies to $\frac{5\sqrt{6}}{3}$

2. Rationalise and simplify

a) $\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

b) $\frac{5}{\sqrt{7}} = \frac{5\sqrt{7}}{7}$

c) $\frac{2}{\sqrt{6}} = \frac{2\sqrt{6}}{6} = \frac{\sqrt{6}}{3}$

d) $\frac{3}{\sqrt{6}} = \frac{3\sqrt{6}}{6} = \frac{\sqrt{6}}{2}$

e) $\frac{4}{\sqrt{6}} = \frac{4\sqrt{6}}{6} = \frac{2\sqrt{6}}{3}$



Rationalising Surds (1)

3 a) Rationalise

$$2 \div \sqrt{11} = \frac{2\sqrt{11}}{11}$$

b) Find the missing values

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

c) Rationalise and simplify

$$\frac{2}{\sqrt{2}} = \sqrt{2}$$

4. Rationalise

$$\frac{5\sqrt{3}}{2\sqrt{2}} = \frac{5\sqrt{3}}{2\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{5\sqrt{6}}{4}$$

5. Express $\frac{8\sqrt{3}}{2\sqrt{2}}$ in the form $a\sqrt{b}$

Where a and b are integers.

$$= 2\sqrt{6}$$

6. Show that $\frac{3\sqrt{10}}{4\sqrt{2}}$ is equal to $\frac{3\sqrt{5}}{4}$

$$\frac{3\sqrt{10}}{4\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} \text{ gives } \frac{3\sqrt{20}}{8} = \frac{6\sqrt{5}}{8} = \frac{3\sqrt{5}}{4}$$

