

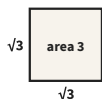
Rationalising the Denominator

ANSWERS

1

Rationalise the denominator.

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



multiply the top and the bottom by the root

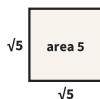
$$\frac{6}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{6\sqrt{3}}{3}$$

Answer 2√3

2

Rationalise the denominator.

$$\frac{10}{\sqrt{5}}$$



multiply the top and the bottom by the root

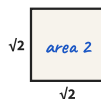
$$\frac{10}{\sqrt{5}} \times \frac{\sqrt{5}}{\sqrt{5}} = \frac{10\sqrt{5}}{5}$$

Answer 2√5

3

Rationalise the denominator.

$$\frac{4}{\sqrt{2}}$$



multiply the top and the bottom by the root

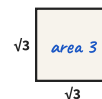
$$\frac{4}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{4\sqrt{2}}{2}$$

Answer 2√2

4

Rationalise the denominator.

$$\frac{15}{\sqrt{3}}$$



multiply the top and the bottom by the root

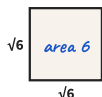
$$\frac{15}{\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{15\sqrt{3}}{3}$$

Answer 5√3

5

Rationalise the denominator.

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



multiply the top and the bottom by the root

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

Answer √6/2

6

Rationalise the denominator.

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

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

Answer √6/2

7

Rationalise the denominator.

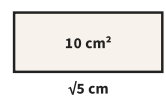
$$\frac{12}{\sqrt{8}}$$

$$\sqrt{8} = 2\sqrt{2} \text{ first}$$

Answer 3√2

8

A rectangle has an area of 10 cm². Its length is √5 cm. Find its width in its simplest form.



$$\frac{10}{\sqrt{5}}$$

Answer 2√5 cm

Rationalising the Denominator *further practice*

ANSWERS

9

Rationalise the denominator.

$$\frac{18}{\sqrt{6}}$$

$$\frac{18\sqrt{6}}{6} = 3\sqrt{6}$$

Answer 3√6

10

Rationalise the denominator. Simplify your answer.

$$\frac{4}{3\sqrt{2}}$$

$$\frac{4\sqrt{2}}{3 \times 2}$$

Answer 2√2/3

11

Which is bigger? Show how you know.

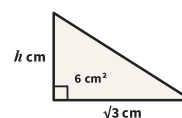
$$\frac{6}{\sqrt{3}} \text{ or } \frac{5}{\sqrt{2}}$$

$$2\sqrt{3} = \sqrt{12}, \frac{5\sqrt{2}}{2} = \sqrt{12.5}$$

Answer 5/√2

12

The area of this right-angled triangle is 6 cm². Find its height, *h*. Give your answer in its simplest form.



$$h = \frac{12}{\sqrt{3}}$$

Answer 4√3 cm

13

A rectangle is $\frac{6}{\sqrt{3}}$ cm long and √12 cm wide. Find its perimeter in its simplest form.

$$2\sqrt{3} + 2\sqrt{3} = 4\sqrt{3}, \text{ then double}$$

Answer 8√3 cm

14

A square has diagonals of length 8 cm. Find the length of one side. Give your answer in the form *a*√2.



$$\text{side} \times \sqrt{2} = 8, \text{ so side} = \frac{8}{\sqrt{2}}$$

Answer 4√2 cm

15

Rationalise the denominator and simplify.

$$\frac{\sqrt{6} + 4}{\sqrt{2}}$$

$$\frac{\sqrt{12} + 4\sqrt{2}}{2} = \frac{2\sqrt{3} + 4\sqrt{2}}{2}$$

Answer √3 + 2√2

16

Jade rationalises $\frac{8}{\sqrt{2}}$ and writes 8√2, because she multiplies the top by √2. Explain her mistake and give the right answer.

$$\frac{8\sqrt{2}}{2} = 4\sqrt{2}$$

Answer 4√2