

Rationalising the Denominator

For AQA GCSE Mathematics (8300) • Higher tier

Name _____

Total marks: **24**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method. Do **not** use a calculator.

1 Rationalise the denominator and simplify fully

(a) $\frac{21}{\sqrt{3}}$

[2 marks]

Answer _____

(b) $\frac{22}{\sqrt{11}}$

[2 marks]

Answer _____

(c) $\frac{1}{2\sqrt{7}}$

[2 marks]

Answer _____

2 Show that $\frac{28}{\sqrt{14}} = \sqrt{56}$

[2 marks]

- 3 Circle the expression equal to $\frac{12}{\sqrt{8}}$

[1 mark]

$$3\sqrt{2}$$

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

$$4\sqrt{2}$$

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

- 4 Write $\frac{\sqrt{3}+1}{\sqrt{3}}$ in the form $\frac{a+\sqrt{b}}{c}$ where a , b and c are integers.

[2 marks]

Answer _____

- 5 A triangle has area 10 cm^2 and base $\sqrt{5} \text{ cm}$.

Work out the height of the triangle.

Give your answer in the form $k\sqrt{5}$

[3 marks]

Answer _____ cm

- 6 Simplify fully $\frac{\sqrt{20} + \sqrt{45}}{\sqrt{10}}$
Give your answer in the form $\frac{a\sqrt{2}}{b}$

[3 marks]

Answer _____

- 7** Show that $\frac{3\sqrt{2}}{\sqrt{5}} - \frac{\sqrt{10}}{10}$ can be written in the form $\frac{\sqrt{a}}{b}$ where a and b are integers.
[3 marks]

- 8** Work out $\sqrt{20} - \frac{36}{\sqrt{80}}$
Give your answer in the form $\frac{\sqrt{a}}{b}$ where a and b are integers.
[4 marks]

Answer _____