



Name: _____ **Date:** _____ **Score:** _____ / 42

1 x is a positive number. Show that $\frac{10}{\sqrt{5x}}$ can be written as $\frac{2\sqrt{5x}}{x}$. (3 marks)

Answer _____

2 Rationalise the denominator of $\frac{12}{\sqrt{3}}$.
Give your answer in its simplest form. (2 marks)

Answer _____

3 Erin is asked to rationalise the denominator of $\frac{8}{\sqrt{6}}$.
Here is her working.
$$\frac{8}{\sqrt{6}} = \frac{8 \times \sqrt{6}}{\sqrt{6} \times \sqrt{6}} = \frac{8\sqrt{6}}{36}$$

Erin has made one mistake.
Explain the mistake Erin has made. (2 marks)

Answer _____

4 Write $6 + \frac{\sqrt{12}}{\sqrt{3}}$ in the form $a + b\sqrt{3}$, where a and b are integers. (4 marks)

Answer _____

- 5 x is a number greater than 4. Rationalise the denominator of $\frac{6}{\sqrt{x} - 2}$. Give your answer as a single fraction.

(3 marks)

Answer _____

- 6 Rationalise the denominator of $\frac{22}{4 + \sqrt{5}}$
Give your answer in the form $a + b\sqrt{5}$, where a and b are integers.

(4 marks)

Answer _____

- 7 The first two terms of a geometric sequence are
 $\sqrt{5} + 1$ $5 + \sqrt{5}$
Find the common ratio of the sequence.
Give your answer in its simplest form.

(4 marks)

Answer _____

- 8 Show that $\sqrt{50} + \frac{18}{\sqrt{2}} = 14\sqrt{2}$

(5 marks)

Answer _____

9

Show that $\frac{7 + \sqrt{5}}{3 - \sqrt{5}}$ can be written as $13 + \frac{5\sqrt{5}}{2}$

(5 marks)

Answer _____

10

Express $\frac{\sqrt{12} + 4}{\sqrt{3} - 1}$ in the form $a + b\sqrt{3}$, where a and b are integers.

Show each stage of your working.

(6 marks)

Answer _____

11

x is a number greater than 9. Rationalise the denominator of $\frac{\sqrt{x} + 3}{\sqrt{x} - 3}$. Give your answer in the form $\frac{x + a\sqrt{x} + b}{x - c}$.

(4 marks)

Answer _____

End of questions | Total 42 marks