

Rationalising Two-Term Denominators

For Pearson Edexcel GCSE Mathematics (1MA1) • Higher tier

Name _____

Total marks: **23**

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

1 Rationalise the denominator and simplify fully

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

.....
(2)

(b) $\frac{4}{3 - \sqrt{5}}$

.....
(2)

(Total for Question 1 is 4 marks)

2 Show that $\frac{\sqrt{2} + 1}{\sqrt{2} - 1}$ can be written as $3 + 2\sqrt{2}$

(3)

(Total for Question 2 is 3 marks)

- 3 Write $\frac{5 + \sqrt{3}}{2 - \sqrt{3}}$ in the form $a + b\sqrt{3}$, where a and b are integers.

.....
(3)

(Total for Question 3 is 3 marks)

- 4 Show that $\frac{4 + \sqrt{18}}{\sqrt{2} + 1}$ can be written in the form $a + b\sqrt{2}$ where a and b are integers.

(3)

(Total for Question 4 is 3 marks)

- 5 Show that $\frac{\sqrt{24} + 2}{4 + \sqrt{6}}$ can be written as $\frac{3\sqrt{6} - 2}{5}$

(4)

(Total for Question 5 is 4 marks)

- 6** The area of a rectangle is 22 cm^2 .
The length of the rectangle is $(4 + \sqrt{5}) \text{ cm}$.
Find the width of the rectangle.
Give your answer in the form $a + b\sqrt{5}$

..... cm
(3)

(Total for Question 6 is 3 marks)

- 7** Show that $\frac{1}{\sqrt{5} - 2} - \frac{1}{\sqrt{5} + 2} = 4$

(3)

(Total for Question 7 is 3 marks)
