

Surds

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** (a) Write $\sqrt{72}$ in the form $k\sqrt{2}$

.....
(1)

- (b) Simplify $\sqrt{75} - \sqrt{12}$

.....
(2)

(Total for Question 1 is 3 marks)

- 2** (a) Expand and simplify $(4 - \sqrt{3})(2 + \sqrt{3})$

.....
(2)

- (b) Expand and simplify $(\sqrt{7} + 2)(\sqrt{7} - 2)$

.....
(2)

(Total for Question 2 is 4 marks)

- 3 $\sqrt{20} + \sqrt{80} = \sqrt{n}$
Find the value of n .

$n = \dots\dots\dots$
(2)

(Total for Question 3 is 2 marks)

- 4 A square has an area of 48 cm^2 .
Find the perimeter of the square.
Give your answer in the form $a\sqrt{3}$.

$\dots\dots\dots \text{ cm}$
(3)

(Total for Question 4 is 3 marks)

- 5 A rectangle has width $\sqrt{3} \text{ cm}$ and length $(\sqrt{50} + \sqrt{8}) \text{ cm}$.
Work out the area of the rectangle.
Give your answer in the form $a\sqrt{6}$ where a is an integer.

$\dots\dots\dots \text{ cm}^2$
(3)

(Total for Question 5 is 3 marks)

- 6 Is $(\sqrt{12} + \sqrt{3})^2$ rational or irrational?
You must show your working.

.....
(2)

(Total for Question 6 is 2 marks)

- 7 Show that $(2\sqrt{5} - 1)^2 + 3(1 - \sqrt{5})$ can be written in the form $a - b\sqrt{5}$, where a and b are integers.

(3)

(Total for Question 7 is 3 marks)

- 8 The diagram shows a right-angled triangle.

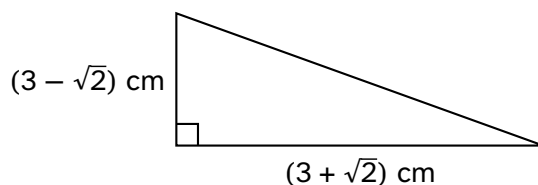


Diagram **NOT** accurately drawn

Show that the length of the hypotenuse of the triangle is $\sqrt{22}$ cm.
You must show all your working.

(3)

(Total for Question 8 is 3 marks)
