

Expanding and simplifying surd expressions

Grade 8 | Higher | 10 questions, 35 marks

GCSE Maths topic practice



Scan for the solutions

Name: _____ Date: _____ Score: _____ / 35

1 Expand and simplify $(6 + \sqrt{11})(6 - \sqrt{11})$ (2 marks)

Answer _____

2 Expand and simplify $(5 + 2\sqrt{3})(5 - 2\sqrt{3})$ (2 marks)

Answer _____

3 Expand and simplify $(2 + \sqrt{5})(3 + \sqrt{5})$ (3 marks)

Answer _____

4 Expand and simplify $(2 + 3\sqrt{2})(4 - \sqrt{2})$
Give your answer in the form $a + b\sqrt{2}$, where a and b are integers. (3 marks)

Answer _____

5 Expand and simplify $(3 - 2\sqrt{5})^2$
Give your answer in the form $a + b\sqrt{5}$, where a and b are integers. (3 marks)

Answer _____

6

Expand and simplify $(4 - \sqrt{3})^2$ Give your answer in the form $a + b\sqrt{3}$, where a and b are integers.

(3 marks)

Answer _____

7

Show that $(2 + \sqrt{3})^2 + (2 - \sqrt{3})^2 = 14$

(4 marks)

Answer _____

8

Show that $(\sqrt{6} + \sqrt{2})^2 = 8 + 4\sqrt{3}$

(4 marks)

Answer _____

9

A right-angled triangle has perpendicular sides of length $(3 + \sqrt{2})$ cm and $(3 - \sqrt{2})$ cm.a. Show that the area of the triangle is 3.5 cm^2 .

b. Find the exact length of the hypotenuse.

(5 marks)

Answer _____

- 10 A trapezium has parallel sides of length $(3 + \sqrt{2})$ cm and $(5 + 3\sqrt{2})$ cm. The perpendicular distance between the parallel sides is $(4 - \sqrt{2})$ cm. Work out the exact area of the trapezium. Give your answer in the form $(a + b\sqrt{2})$ cm², where a and b are integers.

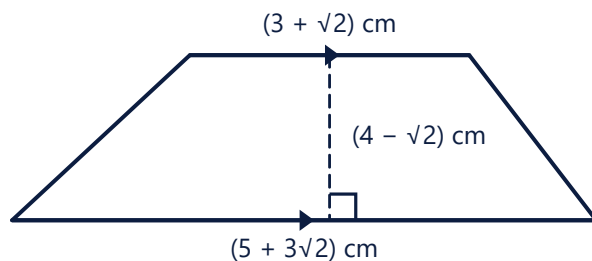


Diagram NOT accurately drawn

(6 marks)

Answer

End of questions | Total 35 marks