Surds and Brackets

SCAN ME

REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

1 Expand and simplify $\sqrt{3}(\sqrt{6} + 5)$

.....

(Total for Question 1 is 2 marks)

2 Expand and simplify $\sqrt{5}(3 - \sqrt{10})$

.....

(Total for Question 2 is 2 marks)

3 Expand and simplify $\sqrt{8}(\sqrt{2} + \sqrt{5})$

.....

(Total for Question 3 is 2 marks)

4 Expand and simplify $\sqrt{6}(\sqrt{8} + \sqrt{2})$

.....

(Total for Question 4 is 3 marks)

For the entire booklet

5 Expand and simplify $(\sqrt{2} + 1)(\sqrt{2} + 3)$

.....

(Total for Question 5 is 2 marks)

6 Expand and simplify $(\sqrt{5} - 2)(\sqrt{5} + 6)$

.....

(Total for Question 6 is 2 marks)

7 Expand and simplify $(7 - \sqrt{2})(\sqrt{2} + 10)$

.....

(Total for Question 7 is 2 marks)

8 Expand and simplify $(\sqrt{11} + 1)^2$

.....

(Total for Question 8 is 2 marks)

9 Expand and simplify $(3\sqrt{6} + 4)(2\sqrt{6} - 5)$

.....

(Total for Question 9 is 3 marks)

10 Expand and simplify $(\sqrt{6} + \sqrt{2})(\sqrt{6} - \sqrt{2})$

.....

(Total for Question 10 is 2 marks)

11 $(\sqrt{5} + \sqrt{2})(\sqrt{10} - 2) = k\sqrt{2}$ where k is an integer.
Work out the value of k.

$k =$ .....

(Total for Question 11 is 3 marks)

12 $(2\sqrt{3} + 5)(3\sqrt{3} + 5) = a + b\sqrt{3}$ where a and b are integers.
Work out the values of a and b.

$a =$ .....

$b =$ .....

(Total for Question 12 is 3 marks)

13 $\sqrt{2}(\sqrt{8} + 5) + 5(3 - \sqrt{18}) = x - y\sqrt{2}$ where x and y are integers.
Work out the values of x and y.

$x =$ .....

$y =$ .....

(Total for Question 13 is 4 marks)

14 $3\sqrt{5}(\sqrt{15} + \sqrt{5}) + \sqrt{6}(\sqrt{8} + \sqrt{24}) = p + q\sqrt{3}$ where p and q are integers.
Work out the values of p and q.

$p =$ .....

$q =$ .....

(Total for Question 14 is 4 marks)

15 Expand and simplify $(\sqrt{3} + 4)^3$

.....

(Total for Question 15 is 4 marks)

Solutions

16 Show clearly that $(\sqrt{3} + 2)^2 + (5 - 2\sqrt{3})^2 - (8 - \sqrt{3})^2$ is equal to an integer.

(Total for Question 16 is 5 marks)

17 $\dfrac{\sqrt{10}(\sqrt{2} + \sqrt{10}) + \sqrt{3}(5\sqrt{12} + \sqrt{15})}{(\sqrt{7} + \sqrt{2})(\sqrt{7} - \sqrt{2})} = a + \sqrt{5}$ where a is an integer.

Work out the value of a

$a =$ .....

(Total for Question 17 is 6 marks)