SCAN ME

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For the entire booklet →

1   Expand and simplify $\sqrt{3}(\sqrt{6} + 5)$ **[2 marks]**

Answer _____

2   Expand and simplify $\sqrt{5}(3 - \sqrt{10})$ **[2 marks]**

Answer _____

3   Expand and simplify $\sqrt{8}(\sqrt{2} + \sqrt{5})$ **[2 marks]**

Answer _____

4   Expand and simplify $\sqrt{6}(\sqrt{8} + \sqrt{2})$ **[3 marks]**

Answer _____

9

5 Expand and simplify $(\sqrt{2} + 1)(\sqrt{2} + 3)$ **[2 marks]**

Answer _____

6 Expand and simplify $(\sqrt{5} - 2)(\sqrt{5} + 6)$ **[2 marks]**

Answer _____

7 Expand and simplify $(7 - \sqrt{2})(\sqrt{2} + 10)$ **[2 marks]**

Answer _____

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

Answer _____

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

Answer _____

10 Expand and simplify $(\sqrt{6} + \sqrt{2})(\sqrt{6} - \sqrt{2})$ **[2 marks]**

Answer _____

11 $(\sqrt{5} + \sqrt{2})(\sqrt{10} - 2) = k\sqrt{2}$ where k is an integer.   **[3 marks]**
Work out the value of k.

$k =$ _____

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

$a =$ _____ $b =$ _____

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Turn over ▶

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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. **[4 marks]**

$x =$ _____ $y =$ _____

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. **[4 marks]**

$p =$ _____ $q =$ _____

15 Expand and simplify $(\sqrt{3} + 4)^3$ **[4 marks]**

Answer _____

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

[5 marks]

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

Work out the value of a

[6 marks]

$a =$ _____

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