Operations with surds

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Simplify $4\sqrt{2} + 3\sqrt{2}$. [2 marks]

Add coefficients: $4 + 3 = 7$.

Answer: $7\sqrt{2}$

2. Simplify $\sqrt{18} - \sqrt{8}$. [2 marks]

$3\sqrt{2} - 2\sqrt{2} = \sqrt{2}$.

Answer: $\sqrt{2}$

3. Find $\sqrt{3}\sqrt{12}$. [2 marks]

$\sqrt{36} = 6$.

Answer: 6

4. Expand $(2 + \sqrt{3})^2$. [3 marks]

$4 + 4\sqrt{3} + 3 = 7 + 4\sqrt{3}$.

Answer: $7 + 4\sqrt{3}$

5. Simplify $\sqrt{75}/\sqrt{3}$. [2 marks]

$\sqrt{75/3} = \sqrt{25} = 5$.

Answer: 5

6. A rectangle has sides $2\sqrt{3}$ cm and $3\sqrt{6}$ cm. Find its exact area. [3 marks]

$2\sqrt{3} \times 3\sqrt{6} = 6\sqrt{18} = 18\sqrt{2}$.

Answer: $18\sqrt{2}$ cm^2