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 $\frac{\sqrt{75}}{\sqrt{3}}$. [2 marks]

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

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