Simplifying surds

6 questions | 14 marks

Equivalent correct methods earn the corresponding marks.

1. Simplify $\sqrt{20}$. [2 marks]

$20 = 4 \times 5$.

Answer: $2\sqrt{5}$

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

$75 = 25 \times 3$.

Answer: $5\sqrt{3}$

3. Simplify $2\sqrt{45}$. [2 marks]

$\sqrt{45} = 3\sqrt{5}$, then multiply by 2.

Answer: $6\sqrt{5}$

4. Simplify $\sqrt{200}$. [2 marks]

$200 = 100 \times 2$.

Answer: $10\sqrt{2}$

5. Simplify $\sqrt{48x^2}$ for $x \geq 0$. [3 marks]

$48x^2 = 16x^2 \times 3$; use $\sqrt{x^2} = x$ under the stated condition.

Answer: $4x\sqrt{3}$

6. A square has area 50 cm^2. Find its exact side length. [3 marks]

The side is $\sqrt{50} = \sqrt{25 \times 2} = 5\sqrt{2}$ cm.

Answer: $5\sqrt{2}$ cm