Estimating non-perfect square roots

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Find consecutive whole-number bounds for $\sqrt{37}$. [2 marks]

$36 < 37 < 49$.

Answer: $6 < \sqrt{37} < 7$.

2. Find consecutive whole-number bounds for $\sqrt{150}$. [2 marks]

$144 < 150 < 169$.

Answer: $12 < \sqrt{150} < 13$.

3. Use squared trial values to locate $\sqrt{12}$ between tenths. [2 marks]

$3.4^2 = 11.56 < 12 < 12.25 = 3.5^2$.

Answer: $3.4 < \sqrt{12} < 3.5$.

4. Estimate $\sqrt{18}$ to one decimal place. [2 marks]

$4.15^2 = 17.2225 < 18 < 18.0625 = 4.25^2$.

Answer: 4.2.

5. Estimate $\sqrt{70}$ to one decimal place. [2 marks]

$8.35^2 = 69.7225 < 70 < 71.4025 = 8.45^2$.

Answer: 8.4.

6. A square has area 55 cm^2. Estimate its side to the nearest tenth of a centimetre. [3 marks]

The side is $\sqrt{55}$ cm.

$7.35^2 = 54.0225 < 55 < 55.5025 = 7.45^2$.

Answer: 7.4 cm.