Square numbers and square roots

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A sample from this topic. The complete topic collection contains three different resources and worked solutions.

Read the explanation and worked example. Show your working; use a calculator only where asked.

What you will practise

• Connect square arrays, square numbers and positive square roots.

• Explain a method and check the reasonableness of a result.

Useful starting skills: Use the prerequisite operations and representations shown in the worked example.

A square number counts an array with the same number of rows and columns. Squaring 9 gives $9 \times 9 = 81$. The positive square root reverses this operation: $\sqrt{81} = 9$.

Consecutive square numbers locate other square roots. Since $25 < 30 < 36$, $\sqrt{30}$ lies between 5 and 6. The symbol $\sqrt{}$ gives the non-negative root.

Worked example

A square garden has area 169 m². Find its side and perimeter.

Side = $\sqrt{169} = 13$ m.

Perimeter = $4 \times 13 = 52$ m.

Answer: 13 m; 52 m

Try it yourself

Name: _____ Date: _____

1. Find 12^2.

2. Find $\sqrt{196}$.

Answers and explanations

Check the method as well as the final answer. An alternative correct method is also valid.

1. 144

Multiply 12 by itself.

2. 14

$14 \times 14 = 196$.

Curriculum reference: VC2M7N01

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