

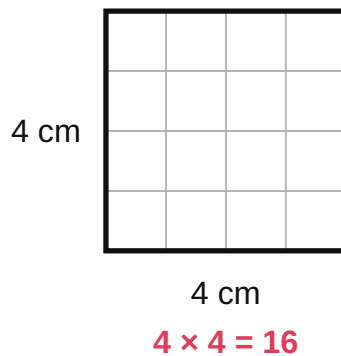
Boost Free Lessons - Year 6 Maths

Lesson 2: Square Numbers

Name: _____ Grade: _____ Date: _____

Worked Example 1

Why is 16 called a square number?



1. A **square number** is what you get when you multiply a number by itself.
2. $16 = 4 \times 4$, so 16 is the square of 4.
3. The grid shows why: 16 unit squares form a perfect 4 by 4 square.
4. We write this as 4^2 , which is read as *four squared*.

$16 = 4^2$, because $4 \times 4 = 16$

Worked Example 2

Find the square root of 49.

1. The **square root** asks the opposite question: what number was squared?
2. So $\sqrt{49}$ means: what number multiplied by itself gives 49?
3. Try numbers: $6 \times 6 = 36$, and $7 \times 7 = 49$.
4. So the square root of 49 is 7.

$\sqrt{49} = 7$

Remember: A **square number** is a number multiplied by itself, written 4^2 . The **square root** reverses it: $\sqrt{16} = 4$.



Question 1: Work out the following.

1. 3^2

2. 5^2

3. 8^2

4. 10^2

5. $\sqrt{25}$

6. $\sqrt{64}$

7. $\sqrt{81}$

8. $\sqrt{100}$



Question 2: Answer the following.

1. List the first ten square numbers.
2. Is 30 a square number? Explain.
3. Between which two square numbers does 50 sit?
4. Work out 12^2 .
5. Work out $\sqrt{144}$.
6. Explain why 1 is a square number.



Question 3: Answer the following questions.

1. A square garden has sides of 9 m. Find its area.
2. A square patio has an area of 36 m^2 . Find the length of one side.
3. Tiles are laid in a square with 7 tiles along each side. How many tiles in total?
4. A square has an area of 121 cm^2 . Find its perimeter.
5. Explain why the area of any square is always a square number.





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Answers: Square Numbers**Question 1**

1. 9
2. 25
3. 64
4. 100
5. 5
6. 8
7. 9
8. 10

Question 2

1. 1, 4, 9, 16, 25, 36, 49, 64, 81, 100
2. No. $5 \times 5 = 25$ and $6 \times 6 = 36$, so no whole number squared gives 30.
3. 49 and 64
4. 144
5. 12
6. $1 \times 1 = 1$, so 1 is the square of itself.

Question 3

1. 81 m^2
2. 6 m
3. 49 tiles
4. 44 cm
5. Area = side $\times$ side, and multiplying a number by itself always gives a square number.

