

LO: Recognise square numbers and their roots

Square numbers

Work out the answers to the following:

$1 \times 1 =$

$5 \times 5 =$

$9 \times 9 =$

$2 \times 2 =$

$6 \times 6 =$

$10 \times 10 =$

$3 \times 3 =$

$7 \times 7 =$

$11 \times 11 =$

$4 \times 4 =$

$8 \times 8 =$

$12 \times 12 =$

The answers to these calculations are the first 12 square numbers.

To square a number, you multiply that number by itself.

We can shorten the calculation using indices (powers).

e.g. 2×2 can be written as 2^2

3×3 can be written as 3^2

Work out:

13^2

17^2

15^2

100^2

75^2

62^2

Square roots

When you find a square root, you are working backwards.

To “undo” a square operation, we square root, represented by this symbol:

Using your calculator, work out the answers to:

$1 =$

$25 =$

$81 =$

$4 =$

$36 =$

$100 =$

$9 =$

$49 =$

$121 =$

$16 =$

$64 =$

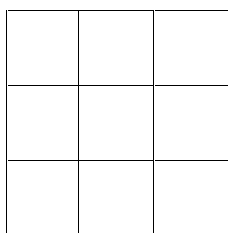
$144 =$

Compare these answers to your calculations on the other side of the sheet. What do you notice?

Square areas

We can use square numbers to help us to calculate areas of squares.

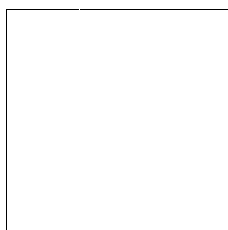
What is the area of the big square if each little square inside is 1cm by 1cm?



There are _____cm squares in total.

The area is _____. (What units?)

Here is the same square without all the centimetre squares drawn inside.



$$\begin{aligned} \text{Area} &= \text{length} \times \text{width} \\ &= \underline{\quad} \times \underline{\quad} \end{aligned}$$

This can also be written as $\underline{\quad}^2$.

When you work this out, the answer is _____ .