

## Powers and roots

| Terms                    | Definitions  | Illustrations  |
|--------------------------|--|--|
| <b>Cube (a number)</b>   | <p>When a number is multiplied by itself once, and then again, the number is cubed.</p> <p>To indicate this process, a power of 3 is used.</p> | $4^3 = 4 \times 4 \times 4 = 64$<br><br>For this example we would say "4 cubed is 64".                     |
| <b>Cube root</b>         | <p>Finding the cube root is the inverse process of cubing a number.</p>  | <p>The cube root of 8 is 2 because 2 cubed is 8.</p> <p>This is written <math>\sqrt[3]{8} = 2</math>.</p>  |
| <b>Power</b>             | <p>The number of times to repeat a multiplication.</p>   | $3^4 = 3 \times 3 \times 3 \times 3 = 81$<br><br>For this example we would say "3 to the power 4 is 81".   |
| <b>Square (a number)</b> | <p>When a number is multiplied by itself, the number is squared.</p> <p>To indicate this process, a power of 2 is used.</p>                    | $5^2 = 5 \times 5 = 25$<br><br>For this example we would say "5 squared is 25".                            |
| <b>Square root</b>       | <p>Finding the square root is the inverse process of squaring a number.</p>  | <p>The square root of 9 is 3 because 3 squared is 9.</p> <p>This is written <math>\sqrt{9} = 3</math>.</p> |

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|----------------------------|--|---|
| <b>Root</b>                | The inverse operation of a power.  |   |
| <b>Scientific notation</b> | A standardised way of writing numbers using positive and negative powers of 10.<br><br>Scientific notation is also known as standard form. | 732000 can be written as $7.32 \times 10^5$ .<br><br>0.00045 can be written as $4.5 \times 10^{-4}$ . |