**Squares and Square Roots**

**How to Square A Number -** To square a number, just multiply it by itself ...

**Example:** What is 3 squared (32)?

|  |  |  |  |
| --- | --- | --- | --- |
| 3 Squared | = | http://www.mathsisfun.com/images/powers-square.gif | = 3 × 3 = **9** |

**Squares From 12 to 62**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 1 Squared | = | 12 | = | 1 × 1 | = | **1** |
| 2 Squared | = | 22 | = | 2 × 2 | = | **4** |
| 3 Squared | = | 32 | = | 3 × 3 | = | **9** |
| 4 Squared | = | 42 | = | 4 × 4 | = | **16** |
| 5 Squared | = | 52 | = | 5 × 5 | = | **25** |
| 6 Squared | = | 62 | = | 6 × 6 | = | **36** |

  **Now let’s try…**

82 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 122 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Square Roots**

A **square root** goes the other way:

3 squared is 9, so a **square root of 9 is 3**

 **\* A square root of a number is a value that can be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_by itself to give the original #.**

 - A square root of **9** is **3**, because **when 3 is multiplied by itself** you get **9**.

 - It is like asking: **What can I multiply by itself to get this?**

**The Square Root Symbol**

You can use it like this: you would say ***"square root of 9 equals 3"***

**Example: What is √25?**

Well, we just happen to know that 25 = 5 × 5, so if you multiply 5 by itself (5 × 5) you will get 25. **So the answer is:** √25 = 5

**Try it: What is √36 ? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Perfect Squares**

The perfect squares are the squares of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ numbers.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | etc |
| **Perfect Squares:** | **1** | **4** | **9** | **16** | **25** | **36** | **49** | **64** | **81** | **100** | **121** | **144** | **169** | **196** | **225** | **...** |

Try to remember at least the first 15 of those.

**Calculating Square Roots**

It is easy to work out the square root of a perfect square, but it is **really hard** to work out other square roots.

**Example: what is √10?**

Well, **3 × 3 = 9** and **4 × 4 = 16**, so we can guess the answer is **between** \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_.

**Let’s Try It:**

$\sqrt{57}$ is between \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_

$\sqrt{18}$ is between \_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_

$\sqrt{126}$ is between \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_