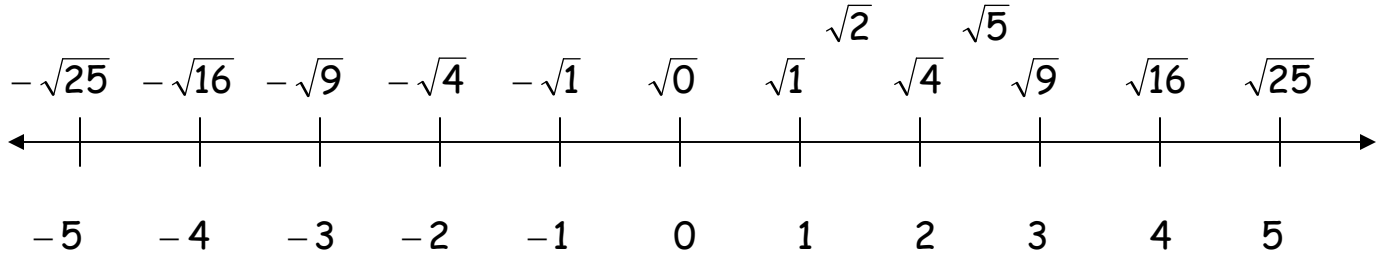
Estimating Square Roots

A non-perfect square has a square root that is an irrational number. Because the square root of a non-perfect square such as 2 or 5 is an irrational number, you can round to find a rational estimate of the square root.

Activity 1:

Define what a perfect square is and list the first 15 perfect squares. You should memorize these numbers they are unique and occur in mathematics repeatedly.

All numbers can be represented on a number line, even irrational numbers. Study the following number line.



All other square roots would fall in between the integers on the number line. When we make an approximation of a square root number we change the irrational number into its rational counterpart.

Example:

$\sqrt{2} = 1.414213562...$

$\sqrt{2} \approx 1.4$ (rounded to the nearest tenth)

$\sqrt{5} = 2.236067978...$

$\sqrt{5} \approx 2.2$ (rounded to the nearest tenth)

Note: $\sqrt{5}$ is in between the $\sqrt{4}$ and the $\sqrt{9}$ so the integers that the $\sqrt{5}$ is in between is 2 and 3 since $\sqrt{4} = 2$ and $\sqrt{9} = 3$.