

### Is it Rational?

Remember that a bar over digits indicates a recurring decimal number, e.g.  $0.\overline{256} = 0.2565656\dots$

For each of the numbers below, decide whether it is rational or irrational.

Explain your reasoning in detail.

5	Rational, because 5 is natural, whole, and an integer.
$\frac{5}{7}$	Rational, because it <del>is</del> is a fraction.
0.575	Rational, because it is a decimal that terminates.
$\sqrt{5}$	Irrational, because 5 is not a perfect square. Therefore, the decimal is non-terminating.
$5 + \sqrt{7}$	Irrational, because $\sqrt{7}$ is non-terminating.
$\frac{\sqrt{10}}{2}$	Irrational, because $\sqrt{10}$ is non-terminating.
5.75...	Irrational, because 5.75... is non-terminating.