Mathematics9 Date _____

Unit 2: Working With Rational Numbers
2.4 Square Roots of Rationals

*Recall – to **square** a number is to multiply the number by itself (ie. exponent 2)

Ex. Estimate and calculate the area of a square with side lengths of $7.1\ cm$.

A **square root** is the inverse (opposite) operation.

Ex. A square has an area of $81\ m^2$. What is the length of each side?

Ex. Evaluate:

a) $\sqrt{9}$ b) $\sqrt{1}$ c) $\sqrt{576}$

Perfect Square:

Perfect Whole Number Squares:

Roots:

Ex. Which of the following are perfect rational squares? Determine the rational root if possible.

a) 169 b) $\frac{25}{49}$ c) $\frac{2}{9}$ d) 0.4

e) $\frac{121}{64}$ f) 12.1 g) 1.21 h) 0.121

Ex. Evaluate with and without a calculator:

a) $\sqrt{1.44}$ b) $\sqrt{0.16}$

The roots of non-perfect squares can be estimated and verified with our calculator.

Ex. Estimate & calculate:

a) $\sqrt{11}$ b) $\sqrt{30}$ c) $\sqrt{0.73}$ d) $\sqrt{0.34}$