Roots

12/20

square root = one of two equal factors

perfect squares = squares of integers

$\sqrt{}$ = square root sign (aka radical sign)

Find each square root.

Ex 1: $\sqrt{64} = 8$ or -8

$8 \times 8 = 64$

$-8(-8) = 64$

± 8

Ex 2: $\sqrt{1.21} = \pm 1.1$

$1.1 \times 1.1 = 1.21$

Ex 3: $\sqrt{\frac{25}{36}}$

$= \frac{\sqrt{25}}{\sqrt{36}} = \frac{\pm 5}{\pm 6}$

$= \pm \frac{5}{6}$

Ex 4: $-\sqrt{144}$

-12

Ex 5: $\sqrt{-16}$

$-4(-4) = 16$

no real #s

A) $\sqrt{\frac{9}{16}}$

B) $-\sqrt{0.81}$

C) $\sqrt{-100}$

$-\sqrt{\frac{81}{100}}$

Ex 6: $t^2 = 169$

$t = \pm 13$

Ex 7: $\sqrt{k^2} = 36$

$\sqrt{36 \cdot 36}$ → $k = 36$

$\sqrt{k^2} = 4$ $\quad \sqrt{4 \cdot 4} = \sqrt{16} = 4$

Cube Roots

Cube root = one of three equal factors

perfect cube = cubes of integers

$\sqrt[3]{}$

Ex 8: $\sqrt[3]{125} = 5$

$5 \cdot 5 \cdot 5 = 125$

Ex 9: $\sqrt[3]{-343} = -7$

$-7(-7)(-7) = -343$

Perfect Squares to Memorize

$1^2 = 1$	$6^2 = 36$	$11^2 = 121$	$16^2 = 256$
$2^2 = 4$	$7^2 = 49$	$12^2 = 144$	$17^2 = 289$
$3^2 = 9$	$8^2 = 64$	$13^2 = 169$	$18^2 = 324$
$4^2 = 16$	$9^2 = 81$	$14^2 = 196$	$19^2 = 361$
$5^2 = 25$	$10^2 = 100$	$15^2 = 225$	$20^2 = 400$