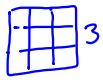
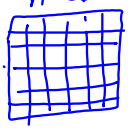
2.9 Square and Cube Roots

$A = 9u^2$



$A = 36u^2$



b is the square root of a

$b = \sqrt{a}$

if $b^2 = a$

$(3)^2 = 9$

$(-3)^2 = 9$

$\sqrt{9} = \pm 3$

$\sqrt{36} = \pm 6$

Cube roots

$b = \sqrt[3]{a}$ if $b^3 = a$

$\sqrt[3]{27} = 3$

$\sqrt[3]{-27} = -3$

$\sqrt[3]{0.008} = 0.2$

$\sqrt[3]{64}$ $\quad$ $\sqrt{64}$

4 $\quad$ ± 8

$\sqrt{\frac{25}{81}} = \frac{\sqrt{25}}{\sqrt{81}} = \pm \frac{5}{9}$

$\sqrt[3]{-\frac{64}{343}} = -\frac{4}{7}$

Estimating Roots

Between what two numbers

$\sqrt{51}$ between 7, 8

$\sqrt{69}$ between 8, 9

Rational
can be expressed as a fraction
- Repeating and terminating decimals

Irrational
- Nonterminating nonrepeating decimal
- can't be a fraction
$\sqrt{2}$, π