

HW: Worksheet/1-15

$$\frac{6}{5} \rightarrow \frac{6}{5}$$

Warm up:

1)  $\sqrt{81} = 9$

2)  $-\sqrt{121} = -11$

3)  $\sqrt{\frac{36}{25}} = \frac{6}{5}$

Rational Numbers - #s that can be written as fractions  $\frac{a}{b}$  where  $a$  and  $b$  are integers

$\frac{2}{3}$   $-3\frac{1}{5}$   $9.6$   
 $6$   $-2$   $0$   $0.159$   $0.4\bar{4}$   $\sqrt{16}$   $\sqrt{4}$   $\sqrt{25}$   
 $\sqrt{9}$

Irrational Numbers - #s that cannot be written as fractions

$\pi$   $0.3829596142839521\dots$   $\sqrt{40}$   
 $\sqrt{2}$   $\sqrt{3}$   $\sqrt{5}$   $\sqrt{6}$   $\sqrt{7}$   $\sqrt{8}$   $\sqrt{10}$   $\sqrt{11}$   $\sqrt{15}$

Why radicals are useful...

$$\sqrt{x^2} = \sqrt{2}$$

$$x = \sqrt{2}$$

~~$$x = 1.414213562\dots$$
$$x \approx 1.41$$
$$(1.41)^2 = 1.9881$$~~

## Rules about Square Roots!

$$\sqrt{ab} = \sqrt{a} \cdot \sqrt{b}$$

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$\begin{aligned}\sqrt{20} &= \sqrt{4 \cdot 5} \\ &= \sqrt{4} \cdot \sqrt{5} \\ &= 2 \cdot \sqrt{5}\end{aligned}$$

$$2\sqrt{5}$$

→ "two root five"

$$\sqrt{150} = \sqrt{25 \cdot 6}$$

$5\sqrt{6}$

$$\begin{aligned}\sqrt{1200} &= \sqrt{100 \cdot 12} \\ &= 10\sqrt{12} \\ &= 10\sqrt{4 \cdot 3} \\ &= 10 \cdot 2\sqrt{3} \\ &= 20\sqrt{3}\end{aligned}$$

1)  $\sqrt{45}$

$\sqrt{9 \cdot 5}$

$3\sqrt{5}$

2)  $\sqrt{44}$

$2\sqrt{11}$

3)  $\sqrt{72}$

$6\sqrt{2}$

4)  $\sqrt{175}$

$5\sqrt{7}$

$2 \cdot 3\sqrt{2}$

5)  $2\sqrt{18}$

$2\sqrt{9 \cdot 2}$

$6\sqrt{2}$

6)  $7\sqrt{63}$

$9 \cdot 7$

$21\sqrt{7}$

7)  $10\sqrt{125}$

$25 \cdot 5$

$50\sqrt{5}$

8)  $5\sqrt{600}$

$100 \cdot 6$

$50\sqrt{6}$

9)  $6\sqrt{245}$

$49 \cdot 5$

$42\sqrt{5}$



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