3/11/15

Radical $\{$ Index ◯ $\sqrt{}$ radicand
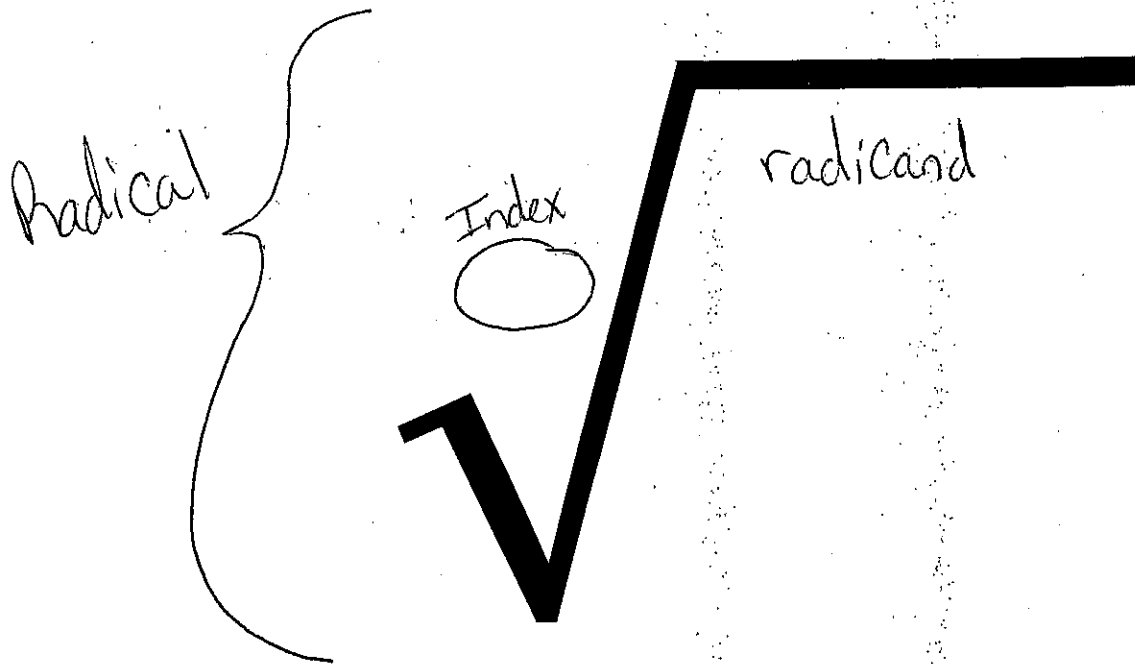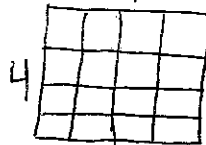
※ A root (radical) is the opposite of a power

※ If there is nothing for the index, it is a 2 = Square root

※ Any other root will be written as the index

Example: $\sqrt{16} = 4$

No index written means 2

4

4

※ think about area of a Square

Examples of Radicals

$$\sqrt{\frac{9}{64}} = \frac{\sqrt{9}}{\sqrt{64}} = \frac{3}{8}$$

*If the fraction is under the radical, take the square root of the numerator and the square root of the denominator

$$-\sqrt{\frac{4}{121}} = -\frac{\sqrt{4}}{\sqrt{121}} = -\frac{2}{11}$$

$$\pm\sqrt{49} = \pm7$$

means the answer is Positive and negative

$$\sqrt{-36} = \emptyset \quad \text{No Solution}$$
$$\text{Not Possible}$$

*Can't take the square root of a negative

must multiply the same number

$$6 \cdot 6 = 36$$
$$-6 \cdot -6 = 36$$

$$-\sqrt{25} = -5$$

Negative sign means the opposite

*the sign in front must go with the answer (in front)

Example #1 -- Square Root of a Decimal

$$\sqrt{.0529}$$

Step 1 Read the number mathematically and write the decimal as a FRACTION.	$\dfrac{529}{10{,}000}$
Step 2 Take the Square Root of the fraction.	$\sqrt{\dfrac{529}{10000}} = \dfrac{\sqrt{529}}{\sqrt{10000}} = \dfrac{23}{100}$
Step 3 Translate the fraction into a DECIMAL	$\dfrac{23}{100} = 0.23$

✳ If you start with a decimal, then end with a decimal. ✳

① $-\sqrt{0.16}$

② $\dfrac{16}{100}$

③ $-\sqrt{\dfrac{16}{100}} = \dfrac{\sqrt{16}}{\sqrt{100}} = -\dfrac{4}{10}$

④ -0.4

$\pm\sqrt{3.24}$

$3\dfrac{24}{100} = \dfrac{324}{100}$

$\pm\sqrt{\dfrac{324}{100}} = \dfrac{\sqrt{324}}{\sqrt{100}} = \pm\dfrac{18}{10}$

$\pm\dfrac{18}{10} = \pm 1.8$

$\pm 1\dfrac{8}{10} = \pm 1.8$

Turn a mixed number into an improper fraction