

NOTES

Unit 1 Day 3 - Simplifying Radicals

$$\sqrt[2]{x} = \sqrt{x}$$

It means... What can multiply by itself to get x.

Remember?

$$\sqrt{1} = 1$$

$$\sqrt{4} = 2$$

$$\sqrt{9} = 3$$

$$\sqrt{16} = 4$$

$$\sqrt{25} = 5$$

$$\sqrt{36} = 6$$

$$\sqrt{49} = 7$$

$$\sqrt{64} = 8$$

$$\sqrt{81} = 9$$

$$\sqrt{100} = 10$$

$$\sqrt{121} = 11$$

$$\sqrt{144} = 12$$

$$\sqrt{169} = 13$$

$$\sqrt{196} = 14$$

$$\sqrt{225} = 15$$

PERFECT SQUARES

Practice:

look for perfect squares!

$$\textcircled{1} \sqrt{24} = \sqrt{4 \cdot 6} = \sqrt{4} \cdot \sqrt{6} = 2\sqrt{6}$$

$$\textcircled{2} \sqrt{48} = \sqrt{16 \cdot 3} = \sqrt{16} \cdot \sqrt{3} = 4\sqrt{3}$$

$$\textcircled{3} \sqrt{72} = \sqrt{36 \cdot 2} = \sqrt{36} \cdot \sqrt{2} = 6\sqrt{2}$$

$$\textcircled{4} \sqrt{90} = \sqrt{9 \cdot 10} = \sqrt{9} \cdot \sqrt{10} = 3\sqrt{10}$$

Now, with variables...

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

$$\sqrt{x^4} = x^2$$

$$\sqrt{x^6} = x^3$$

In general,
divide power
by 2!

$$\textcircled{1} \sqrt{9k^{10}} = \sqrt{9} \sqrt{k^{10}} = 3k^5$$

$$\textcircled{2} \sqrt{40a^9} = \sqrt{40} \sqrt{a^9} = \sqrt{4 \cdot 10} \sqrt{a^8 a^1} = 2\sqrt{10} a^4 \sqrt{a}$$

or $2a^4 \sqrt{10a}$

$$\textcircled{3} \sqrt{25x^6y^3} = \sqrt{25} \sqrt{x^6} \sqrt{y^2 y^1} = 5x^3 y^3 \sqrt{y}$$

want even # to ÷ by 2