

Variable Radicals

Even Exponent:

Take half

$$\sqrt{x^{10}} = x^5$$

Odd Exponent:

Leave one under the radical
+ take half of the rest.

$$\sqrt{y^9} = \sqrt{y^8} \sqrt{y}$$

$(y^4 \sqrt{y})$

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

2. $\sqrt{y^{15}} = \sqrt{y^{14}} \sqrt{y}$
 $y^7 \sqrt{y}$

3. $\sqrt{a^{1028}} = a^{514}$

4. $\sqrt{a^{12} b^{24}}$

$$\sqrt{a^{12}} \sqrt{a} = a^6 \sqrt{a}$$

$$\sqrt{b^{24}} = b^{12}$$

$$a^6 b^{12} \sqrt{a}$$

5. $\sqrt{18c^5d^4}$

$$\sqrt{18} = \sqrt{9 \cdot 2} = 3\sqrt{2}$$

$$\sqrt{c^5} = \sqrt{c^4} \sqrt{c} = c^2 \sqrt{c}$$

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

$$3c^2d^2\sqrt{2c}$$

9. $-2\sqrt{15x^2y^8}$

$$\sqrt{15}$$

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

$$\sqrt{y^8} = y^4$$

$$-2xy^4\sqrt{15}$$