

Radicals with Variables

Variable terms are perfect squares **IF**:

the exponent is even

To take the square root of a variable term:

divide the exponent by 2

$$1. \sqrt{c^8} \\ c^4$$

$$2. \sqrt{x^{14}} \\ x^7$$

$$3. \sqrt{a^4} \\ a^2$$

$$4. \sqrt{y^{10}} \\ y^5$$

$$5. \sqrt{m^2} \\ m$$

$$6. \sqrt{m^4 n^6} \\ m^2 n^3$$

$$7. \sqrt{x^3} \\ \sqrt{x^2} \sqrt{x} \\ x \sqrt{x}$$

$$8. \sqrt{m^5} \\ \sqrt{m^4} \sqrt{m} \\ m^2 \sqrt{m}$$

$$9. \sqrt{b^{11}} \\ \sqrt{b^{10}} \sqrt{b} \\ b^5 \sqrt{b}$$

$$10. \sqrt{q^{15}} \\ \sqrt{q^{14}} \sqrt{q} \\ q^7 \sqrt{q}$$

$$11. \sqrt{d^3 e^4} \\ \sqrt{d^2} \sqrt{d} \sqrt{e^4} \\ \sqrt{d^2} \sqrt{e^4} \sqrt{d} \\ d e^2 \sqrt{d}$$

1. Separate
2. break apart
3. reorganize
4. take rational roots

$$12. \sqrt{m^8 n^7} \\ \sqrt{m^8} \sqrt{n^7} \\ \sqrt{m^8} \sqrt{n^6} \sqrt{n} \\ m^4 n^3 \sqrt{n}$$

$$13. \sqrt{xy^5} \\ \sqrt{x} \sqrt{y^5} \\ \sqrt{x} \sqrt{y^4} \sqrt{y} \\ \sqrt{y^4} \sqrt{xy} \\ y^2 \sqrt{xy}$$

$$14. \sqrt{a^{13} b^7} \\ \sqrt{a^{12}} \sqrt{b^7} \\ \sqrt{a^{12}} \sqrt{a} \sqrt{b^6} \sqrt{b} \\ \sqrt{a^{12}} \sqrt{b^6} \sqrt{ab} \\ a^6 b^3 \sqrt{ab}$$

$$15. \sqrt{y^{12} z^{17}} \\ \sqrt{y^{12}} \sqrt{z^{17}} \\ \sqrt{y^{12}} \sqrt{z^{16}} \sqrt{z} \\ y^6 z^8 \sqrt{z}$$

HOMEWORK

Worksheet - HW Radicals
with Variables