

Simplifying Radical Expressions

Date _____ Period _____

Simplify.

1) $\frac{\sqrt{125n}}{5\sqrt{5n}}$

2) $\frac{\sqrt{216v}}{6\sqrt{6v}}$

3) $\frac{\sqrt{512k^2}}{16k\sqrt{2}}$

4) $\frac{\sqrt{512m^3}}{16m\sqrt{2m}}$

5) $\frac{\sqrt{216k^4}}{6k^2\sqrt{6}}$

6) $\frac{\sqrt{100v^3}}{10v\sqrt{v}}$

7) $\frac{\sqrt{80p^3}}{4p\sqrt{5p}}$

8) $\frac{\sqrt{45p^2}}{3p\sqrt{5}}$

9) $\frac{\sqrt{147m^3n^3}}{7m \cdot n\sqrt{3mn}}$

10) $\frac{\sqrt{200m^4n}}{10m^2\sqrt{2n}}$

11) $\frac{\sqrt{75x^2y}}{5x\sqrt{3y}}$

12) $\frac{\sqrt{64m^3n^3}}{8m \cdot n\sqrt{mn}}$

13) $\frac{\sqrt{16u^4v^3}}{4u^2 \cdot v\sqrt{v}}$

14) $\frac{\sqrt{28x^3y^3}}{2x \cdot y\sqrt{7xy}}$

$$15) \frac{\sqrt{36x^2y^3}}{6x \cdot y\sqrt{y}}$$

$$16) \frac{\sqrt{384x^4y^3}}{8x^2 \cdot y\sqrt{6y}}$$

$$17) \frac{7\sqrt{96m^3}}{28m\sqrt{6m}}$$

$$18) \frac{6\sqrt{72x^2}}{36x\sqrt{2}}$$

$$19) \frac{-6\sqrt{150r}}{-30\sqrt{6r}}$$

$$20) \frac{5\sqrt{80a^2}}{20a\sqrt{5}}$$

$$21) \frac{2\sqrt{125v}}{10\sqrt{5v}}$$

$$22) \frac{-8\sqrt{24k^3}}{-16k\sqrt{6k}}$$

$$23) \frac{-4\sqrt{192x}}{-32\sqrt{3x}}$$

$$24) \frac{2\sqrt{8p^2q^3r}}{4p \cdot q\sqrt{2qr}}$$

$$25) \frac{-4\sqrt{216x^2y^2z}}{-24x \cdot y\sqrt{6z}}$$

$$26) \frac{-3\sqrt{24a^4b^2c^3}}{-6a^2 \cdot b \cdot c\sqrt{6c}}$$

$$27) \frac{3\sqrt{16x^4y^4z}}{12x^2y^2\sqrt{z}}$$

$$28) \frac{-2\sqrt{48a^3b^4c^2}}{-8b^2 \cdot a \cdot c\sqrt{3a}}$$

$$29) \frac{6\sqrt{75mp^2q^3}}{30p \cdot q\sqrt{3mq}}$$

$$30) \frac{4\sqrt{36x^2y^3z^4}}{24z^2 \cdot x \cdot y\sqrt{y}}$$

Simplifying Radicals

Simplify. Use absolute value signs when necessary.

1) $\sqrt{24}$

$2\sqrt{6}$

2) $\sqrt[3]{1000}$

10

3) $\sqrt[3]{-162}$

$-3\sqrt[3]{6}$

4) $\sqrt{512}$

$16\sqrt{2}$

5) $\sqrt[4]{128n^8}$

$2n^2\sqrt[4]{8}$

6) $\sqrt{98k}$

$7\sqrt{2k}$

7) $\sqrt[5]{224r^7}$

$2r\sqrt[5]{7r^2}$

8) $\sqrt[3]{24m^3}$

$2m\sqrt[3]{3}$

9) $\sqrt{392x^2}$

$14|x|\sqrt{2}$

10) $\sqrt{512x^2}$

$16|x|\sqrt{2}$

11) $\sqrt[4]{405x^3y^2}$

$3\sqrt[4]{5x^3y^2}$

12) $\sqrt[3]{-16a^3b^8}$

$-2ab^2\sqrt[3]{2b^2}$

13) $\sqrt[4]{128x^7y^7}$

$2|x| \cdot |y|\sqrt[4]{8x^3y^3}$

14) $\sqrt[3]{16xy}$

$2\sqrt[3]{2xy}$

15) $\sqrt[6]{448x^7y^7}$

$2|x| \cdot |y|\sqrt[6]{7xy}$

16) $\sqrt[3]{56x^5y}$

$2x\sqrt[3]{7x^2y}$

Critical thinking questions:

17) What simplifies into $2mn^2\sqrt[3]{5mn^2}$?

$\sqrt[3]{40m^4n^8}$

18) Simplify $\sqrt[n]{3 \cdot 2^n \cdot x^{2n} y^{n+3}}$

$2x^2y\sqrt[n]{3y^3}$