

C7L5 Notes

Rational Exponents and Radicals

Evaluate:

1. $\sqrt[3]{27}$
 $27^{\frac{1}{3}}$
3

2. $\sqrt[6]{4096}$
 $4096^{\frac{1}{6}}$
4

3. $\sqrt[4]{2401}$
 $2401^{\frac{1}{4}}$
7

4. $\sqrt[4]{81^3}$
 $(\sqrt[4]{81})^3$
 $(81^{\frac{1}{4}})^3$
 $81^{\frac{3}{4}}$
27

5. $\sqrt[3]{125^2}$
 $(\sqrt[3]{125})^2$
 $(125^{\frac{1}{3}})^2$
 $125^{\frac{2}{3}}$
25

6. $\sqrt[7]{2187^5}$
 $(\sqrt[7]{2187})^5$
 $(2187^{\frac{1}{7}})^5$
 $2187^{\frac{5}{7}}$
243

Write in radical form.

7. $n^{\frac{3}{5}}$
 $\sqrt[5]{n^3}$

8. $y^{\frac{4}{7}}$
 $\sqrt[7]{y^4}$

9. $25n^{\frac{1}{2}}$
 $25\sqrt{n}$

$$10. (25n)^{\frac{1}{2}}$$

$$25^{\frac{1}{2}} n^{\frac{1}{2}}$$

$$5\sqrt{n}$$

$$11. (729x)^{\frac{5}{6}}$$

$$729^{\frac{5}{6}} x^{\frac{5}{6}}$$

$$243\sqrt[6]{x^5}$$

$$12. (78125m)^{\frac{2}{7}}$$

$$78125^{\frac{2}{7}} m^{\frac{2}{7}}$$

$$25\sqrt[7]{m^2}$$

Write in exponential form.

$$13. \sqrt[5]{n^3}$$

$$n^{\frac{3}{5}}$$

$$14. \sqrt[7]{128n^3}$$

$$\sqrt[7]{128} \sqrt[7]{n^3}$$

$$128^{\frac{1}{7}} n^{\frac{3}{7}}$$

$$2n^{\frac{3}{7}}$$

$$15. \sqrt[3]{343a^2}$$

$$\sqrt[3]{343} \sqrt[3]{a^2}$$

$$343^{\frac{1}{3}} a^{\frac{2}{3}}$$

$$7a^{\frac{2}{3}}$$

$$17. \sqrt[4]{(9x)^2}$$

$$\sqrt[4]{81x^2}$$

$$\sqrt[4]{81} \sqrt[4]{x^2}$$

$$81^{\frac{1}{4}} x^{\frac{2}{4}}$$

$$3x^{\frac{1}{2}}$$

$$18. \sqrt{49x}$$

$$\sqrt{49} \sqrt{x}$$

$$49^{\frac{1}{2}} x^{\frac{1}{2}}$$

$$7x^{\frac{1}{2}}$$

$$19. \sqrt[3]{512a}$$

$$\sqrt[3]{512} \sqrt[3]{a}$$

$$512^{\frac{1}{3}} a^{\frac{1}{3}}$$

$$8a^{\frac{1}{3}}$$