

Unit 4 ReviewName KEY Hr. _____**4.1****Show All Work!****Simplify each expression completely.**

1. $\sqrt{25p^4q^2}$

$5p^2q$

2. $\sqrt[4]{a^{16}b^8}$

a^4b^2

3. $\sqrt[5]{32p^{25}q^{15}r^5s^{20}}$

$2p^5q^3rs^4$

4.2**Simplify each expression completely.**

4. $\sqrt{9h^{22}}$

$3h^{11}$

5. $\sqrt[3]{256t^4}$

$$\begin{array}{l} \textcircled{2}^{\wedge} 128 \\ \textcircled{2}^{\wedge} 64 \\ \textcircled{2}^{\wedge} 8 \quad \textcircled{2}^{\wedge} 8 \\ \textcircled{2}^{\wedge} 8 \quad \textcircled{2}^{\wedge} 8 \end{array}$$

$4t\sqrt[3]{4t}$

6. $\sqrt[3]{2401x^5y^6}$

$$\begin{array}{c} \wedge \\ 7 \quad 343 \\ \wedge \\ 7 \quad 49 \\ \wedge \\ 7 \quad 7 \end{array}$$

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

7. $\sqrt{507x^{17}y^{24}}$

$$\begin{array}{c} \wedge \\ 3 \quad 169 \\ \wedge \\ 13 \quad 13 \end{array}$$

$13x^8y^{12}\sqrt{3x}$

4.2 cont.**Simplify each expression completely.**

8. $\sqrt{3} + \sqrt{72} - \sqrt{128} + \sqrt{108}$

$$\sqrt{3} + 6\sqrt{2} - 8\sqrt{2} + 6\sqrt{3}$$

$$= 7\sqrt{3} - 2\sqrt{2}$$

9. $5\sqrt{20} + \sqrt{24} - \sqrt{180} + 7\sqrt{54}$

$$10\sqrt{5} + 2\sqrt{6} - 6\sqrt{5} + 21\sqrt{6}$$

$$= 4\sqrt{5} + 23\sqrt{6}$$

10. $\frac{7 \cdot 4 + \sqrt{3}}{4 - \sqrt{3}} \cdot \frac{4 + \sqrt{3}}{4 + \sqrt{3}}$



$$\frac{28 + 7\sqrt{3}}{13}$$

11. $\frac{-2 - \sqrt{3}}{1 + \sqrt{3}} \cdot \frac{1 - \sqrt{3}}{1 - \sqrt{3}}$

$$\begin{array}{c} -2 \quad -\sqrt{3} \\ 1 \left[\begin{array}{c|c} -2 & -\sqrt{3} \\ \hline 2\sqrt{3} & 3 \end{array} \right] \\ -\sqrt{3} \end{array}$$

$$-\frac{1 + \sqrt{3}}{2}$$

4.3

Write the given expression in radical form.

12. $m^{\frac{9}{17}}$

$$\left(\sqrt[17]{m}\right)^9$$

13. $(b^{13})^{\frac{15}{7}}$

$$\left(\sqrt[7]{b}\right)^{195}$$

or

$$\left(\sqrt[7]{b^{13}}\right)^{15} \text{ or } \sqrt[7]{(b^{13})^{15}}$$

Write the given radical using rational exponents.

14. $\sqrt[2]{5a^5b^9}$

$$5^{1/2} a^{5/2} b^{9/2}$$

15. $\sqrt[6]{8x^3y}$

$$8^{1/6} x^{1/2} y^{1/6}$$

4.4

Solve the given equation.

16. $\sqrt[3]{c-1} = 2$

$$c-1 = 8$$

$$\boxed{c = 9}$$

17. $5 + \sqrt{4y-5} = 12$

$$\sqrt{4y-5} = 7$$

$$4y-5 = 49$$

$$4y = 54$$

$$\boxed{y = 13.5}$$

4.5

18. $(5 - 2i) + (4 + 4i)$

$$\boxed{9 + 2i}$$

19. $(3 - 4i) - (1 - 4i)$

$$\boxed{2}$$

20. $(-3 - i)(2 - 2i)$

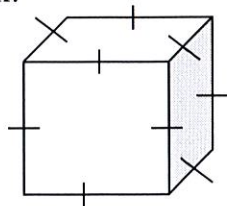
	-3	-i
2	-6	-2i
-2i	6i	2i ² =-2

$$\boxed{-8 + 4i}$$

21. Mr. Fandango wants to know the dimensions of a perfect cubic swimming pool that can hold a volume of 42,875 ft³ of water. The dimensions of the pool are:

(5x-15) ft. by (5x-15) ft. by (5x-15) ft.

Show work!



21. solve for x = 10

$$(5x - 15)^3 = 42,875$$

$$(\sqrt[3]{5x - 15})^3 = \sqrt[3]{42,875}$$

$$5x - 15 = 35$$

$$5x = 50$$

$$\boxed{x = 10}$$