

Answers for Lesson 7-4 Exercises		
1. 6	2. 3	3. 7
4. 10	5. -3	6. 6
7. 8	8. 3	9. 3
10. $\sqrt[3]{x}$	11. $\sqrt[3]{x}$	12. $\sqrt{x^2}$ or $(\sqrt{x})^2$
13. $\sqrt[3]{y^2}$ or $(\sqrt[3]{y})^2$	14. $\frac{1}{\sqrt[3]{y}}$ or $(\frac{1}{\sqrt[3]{y}})^3$	15. $\frac{1}{\sqrt[3]{y}}$ or $(\frac{1}{\sqrt[3]{y}})^3$
16. $\sqrt{x^3}$ or $(\sqrt{x})^3$	17. $\sqrt[3]{y^6}$ or $(\sqrt[3]{y})^6$	18. $(-10)^{\frac{1}{2}}$
19. $7^{\frac{1}{2}}x^{\frac{1}{2}}$	20. $(7x)^{\frac{1}{2}}$	21. $(7x)^{\frac{1}{2}}$
22. $a^{\frac{1}{2}}$	23. $a^{\frac{1}{2}}$	24. $c^{\frac{1}{2}}$
25. $25x^2y^2$	31. 16	32. 4
	34. $\frac{1}{16}$	35. 8
	37. 1000	38. $\frac{1}{x^2}$
	40. $\frac{1}{3x^3}$	41. $\frac{5}{x^3}$
	43. $-2y^3$	44. $\frac{1}{x}$
	46. $\frac{x^4}{x^3}$	47. $\frac{x^2}{x}$
	49. $\frac{x^5}{x^6}$	50. -7
		33. 64
		36. 64
		39. $\frac{1}{x^4}$
		42. $-\frac{3}{x^3}$
		45. $x^{\frac{11}{3}}$
		48. $x^3y^9$
		51. -3

Dec 3-3:17 PM

(17)  $y^{1.2} = y^{\frac{12}{10}} = y^{\frac{6}{5}} = \sqrt[5]{y^6}$

(25)  $\sqrt[3]{(5xy)^6} = (5xy)^{\frac{6}{3}} = (5xy)^2 = 25x^2y^2$

Dec 8-10:33 AM

(41)  $5(x^{\frac{2}{3}})^{-1}$

$\frac{5}{x^{\frac{2}{3}}}$

Dec 8-10:38 AM

$$\textcircled{33} \quad (-32)^{\frac{6}{5}} = (-2^5)^{\frac{6}{5}}$$

$$\begin{array}{c} 16 \quad 2 \\ \swarrow \quad \searrow \\ 4 \quad 4 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 2 \quad 2 \quad 2 \quad 2 \\ 2^5 \end{array} = (-2)^6 = 64$$

Dec 8-10:43 AM

$$\textcircled{45} \quad \left(\frac{x^2}{x^{-11}}\right)^{\frac{1}{3}}$$

$$(x^{13})^{\frac{1}{3}}$$

$$x^{\frac{13}{3}} = \sqrt[3]{x^{13}}$$

Dec 8-10:47 AM

$$\textcircled{47} \quad (x^{\frac{2}{3}} y^{-\frac{1}{6}})^{-12}$$

$$x^{-8} y^2 = \frac{y^2}{x^8}$$

$$\textcircled{41} \quad 5(x^{\frac{2}{3}})^{-1}$$

$$5x^{-\frac{2}{3}} = \frac{5}{x^{\frac{2}{3}}}$$

Dec 8-12:59 PM

## 7.1-7.4 Review

Grade: 10th, 11th  
Subject: Algebra II  
Date: Dec 2015

Jan 31-10:36 PM

rewrite using fraction exponents:

$$\sqrt[3]{3x^5} = (3x^5)^{\frac{1}{3}}$$
$$3^{\frac{1}{3}} x^{\frac{5}{3}}$$

Dec 8-1:18 PM

1) Rewrite in radical form

$$-9x^{\frac{3}{2}} = -9\sqrt{x^3}$$

Dec 8-1:58 PM

2) Simplify completely:  $(16x^{-6}y^2)^{-\frac{1}{2}}$

$$\begin{array}{c} \swarrow \quad \searrow \\ 4 \quad 4 \\ \swarrow \quad \searrow \quad \swarrow \quad \searrow \\ 2 \quad 2 \quad 2 \quad 2 \end{array}$$

$$(2^4 x^{-6} y^2)^{-\frac{1}{2}} = 2^{-2} x^3 y^{-1} = \frac{x^3}{4y}$$

Dec 8-1:58 PM

3) Simplify completely:

$$(8x^{-6})^{\frac{2}{3}} = \frac{4}{x^4}$$

Dec 8-1:58 PM

4) Simplify completely.

$$\frac{\sqrt[3]{-250x^3y^{13}}}{\sqrt[3]{2x^{12}y^2}} = \sqrt[3]{\frac{-250x^3y^{13}}{2x^{12}y^2}}$$

$$\sqrt[3]{-125x^{-9}y^{11}} = -\sqrt[3]{5^3x^{-9}y^9y^2}$$

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

$$= -5y^3\sqrt[3]{y^2}/x^3$$

Feb 1-12:04 PM

5) Simplify completely.

$$\begin{aligned} & (-2x^4y^{-1})^3(-2x^{-10}) \\ & \frac{16x^{12}}{y^3} \end{aligned}$$

Jan 31-10:37 PM

6) Simplify completely.

$$\begin{aligned} & (3 + 4\sqrt{3})^2 \\ & 57 + 24\sqrt{3} \end{aligned}$$

Jan 31-10:37 PM

7) Simplify completely.

$$\begin{aligned} & 5\sqrt{32} + 7\sqrt{8} - 4\sqrt{50} \\ & 20\sqrt{2} + 14\sqrt{2} - 20\sqrt{2} \\ & 14\sqrt{2} \end{aligned}$$

Jan 31-10:37 PM

8) Rationalize the denominator.

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

$$\frac{4+\sqrt{2}+3\sqrt{2}+2}{9-2} = \frac{6+4\sqrt{2}}{7}$$

Jan 31-10:37 PM

rewrite

$$\sqrt[3]{3x^5} = (3x^5)^{\frac{1}{3}}$$

$$3^{\frac{1}{3}} x^{\frac{5}{3}}$$

Dec 8-11:01 AM

$$\sqrt[3]{2x^4y^2} \cdot \sqrt[3]{16xy^{10}}$$

$$\sqrt[3]{2 \cdot 16 x^5 y^{12}}$$

$\begin{array}{c} 4 \quad 4 \\ \wedge \quad \wedge \\ 2 \quad 2 \quad 2 \end{array}$

$$\sqrt[3]{2^3 \cdot 2^2 x^3 x^2 y^{12}} = 2xy^4 \sqrt[3]{4x^2}$$

Dec 8-11:06 AM

END OF REVIEW 7.1-7.4

Feb 1-12:11 PM



Dec 8-11:14 AM

Find each indicated root if it is a real number.

11.  $\sqrt{144}$     12.  $\sqrt[3]{-0.064}$     13.  $\sqrt[4]{7^4}$     14.  $\sqrt{0.25}$     15.  $-\sqrt[3]{27}$

Simplify each radical expression. Use absolute value symbols as needed.

16.  $\sqrt{49x^2y^{10}}$     17.  $\sqrt[3]{-64y^9}$     18.  $\sqrt{(a-1)^4}$   
 19.  $\sqrt[5]{243x^{15}}$     20.  $\sqrt[3]{(y+3)^6}$     21.  $\sqrt{32x^9y^5}$

Simplify each expression. Assume that all variables are positive.

22.  $\sqrt{10} \cdot \sqrt{40}$     23.  $\sqrt[3]{12} \cdot \sqrt[3]{36}$     24.  $2\sqrt[3]{2x^2y} \cdot 5\sqrt[3]{6x^4y^4}$   
 25.  $\sqrt{7x^3} \cdot \sqrt{14x}$     26.  $\sqrt{5x^4y^3} \cdot \sqrt{45x^3y}$     27.  $3\sqrt[4]{4x^3} \cdot \sqrt[4]{8xy^5}$   
 28.  $\frac{\sqrt{128}}{\sqrt{8}}$     29.  $\frac{\sqrt[3]{56y^5}}{\sqrt[3]{7y}}$     30.  $\frac{\sqrt{75x^3}}{\sqrt{3x}}$     31.  $\frac{\sqrt{216x^3y^2}}{\sqrt{2}}$     32.  $\frac{\sqrt[3]{81a^9b^5}}{\sqrt[3]{3a^2b}}$

Dec 3-3:18 PM

Simplify each expression.

38.  $\sqrt{27} + \sqrt{75} - \sqrt{12}$    39.  $(5 + \sqrt{3})(2 - \sqrt{3})$    40.  $(7 - \sqrt{6})(7 + \sqrt{6})$

Simplify each expression. Rationalize all denominators. Assume that all variables are positive.

41.  $\sqrt{2x} - \sqrt{8x} + \sqrt{18x}$    42.  $\frac{6}{7 + 2\sqrt{3}}$    43.  $\frac{\sqrt{2}}{1 - \sqrt{5}}$

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Dec 3-3:19 PM