Warm Up

Simplify:

1) $\frac{(8x^{-3}y^{5})^{2}}{x^{6}y}$ 2) $(3x^{-5}y^{4})^{-2}$

Simplify:

3) $\sqrt[3]{-64a^{42}}$

4) $-\sqrt{81c^{24}d^{64}}$

5) $\sqrt[4]{16x^{36}y^{48}}$

Jan 19-10:43 AM

1. 15, −15	**2.** 0.07, −0.07	**3.** none
4. $\frac{8}{13}, -\frac{8}{13}$	**5.** −4	**6.** 0.5
7. $-\frac{1}{2}$	**8.** 0.07	**9.** 2, −2
10. none	**11.** 0.3, −0.3	**12.** $\frac{10}{3}, -\frac{10}{3}$
13. 6	**14.** −6	
15. no real-number root	**16.** 0.6	
17. −4	**18.** −4	
19. −3	**20.** no real-number root	
21. $4\|x\|$	**22.** $0.5\|x^3\|$	**23.** $x^4\|y^9\|$
24. $8b^{24}$	**25.** $-4a$	**26.** $3y^2$
27. $x^2\|y^3\|$	**28.** $2y^2$	**29.** 1.34 in.
30. 1.68 ft	**31.** 0.48 cm	**32.** 0.08 mm
33. 10, −10	**34.** 1, −1	**35.** 0.5, −0.5

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$V = \frac{4}{3}\pi r^3$

$\frac{3}{4} \cdot 10 = \frac{3}{4} \cdot \frac{4}{3}\pi r^3$

$\frac{1}{\pi} \cdot \frac{30}{4} = \frac{1}{\pi} \cdot \pi r^3$

$\sqrt[3]{\frac{30}{4\pi}} = \sqrt[3]{r^3}$

Dec 1-10:41 AM

36. $\frac{2}{3}, -\frac{2}{3}$ **37.** $\sqrt[3]{-64}, \sqrt[6]{64}, -\sqrt[3]{-64}, \sqrt{64}$

38. **a.** ≈35 ft
b. ≈20 ft longer

39. 0.5 **40.** $\frac{1}{3}$ **41.** 0.2

42. $\frac{1}{4}$ **43.** $2|c|$ **44.** $3xy^2\sqrt[3]{3}$

45. $12y^2z^2|x|\sqrt{xy}$ **46.** y^4 **47.** $-y^4$

48. k^3 **49.** $-k^3$ **50.** $|x+3|$

51. $(x+1)^2$ **52.** $|x|$

53. x^2 **54.** $|x^3|$

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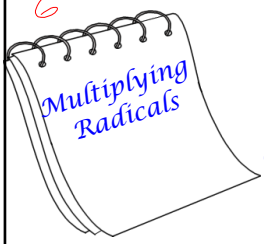
7.2 Multiplying and Dividing Radical Expressions

$\sqrt{9} \cdot \sqrt{4}$ = same as..... $\sqrt{36} = 6$

$3 \cdot 2 = 6$



1) $\sqrt{2} \cdot \sqrt{8} = \sqrt{16}$ ± 4

2) $\sqrt[3]{-16} \cdot \sqrt[3]{4} = \sqrt[3]{-64}$

or $\sqrt[3]{-2^4 \cdot 2^2} = \sqrt[3]{-2^6} = -2^2 = -4$

3) $\sqrt[4]{4} \cdot \sqrt[4]{-4} =$

no real answer

Jan 19-11:07 AM

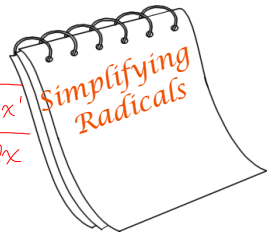
Simplify:

4) $\sqrt{50x^5} = \sqrt{2 \cdot 5^2 x^2 \cdot x^2 \cdot x^1}$

$5x \cdot x\sqrt{2x} = \pm 5x^2\sqrt{2x}$

5) $\sqrt[3]{24x^{32}}$

6) $\sqrt[3]{54n^8}$



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$\sqrt[3]{24x^{32}} = \sqrt[3]{2^3 \cdot 3 x^{30} \cdot x^2}$

2 12

2 6

2 3

$2x^{10}\sqrt[3]{3x^2}$

Dec 1-11:05 AM

Multiplying then Simplifying

7) $\sqrt[3]{25xy^8} \cdot \sqrt[3]{5x^4y^3}$

$\sqrt[3]{25 \cdot 5\, x^5 y^{11}}$

5 5

$\sqrt[3]{5^3 x^3 \cdot x^2 \cdot y^9 \cdot y^2}$

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

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Dividing Radicals

8) $\dfrac{\sqrt{300}}{\sqrt{3}}$

9) $\dfrac{\sqrt{48x^{14}}}{\sqrt{6xy^2}} = \sqrt{\dfrac{8x^{13}y^{-2}}{2^3 x^{12} \cdot x \cdot y^{-2}}}$

$\dfrac{2x^6\sqrt{2x}}{y}$

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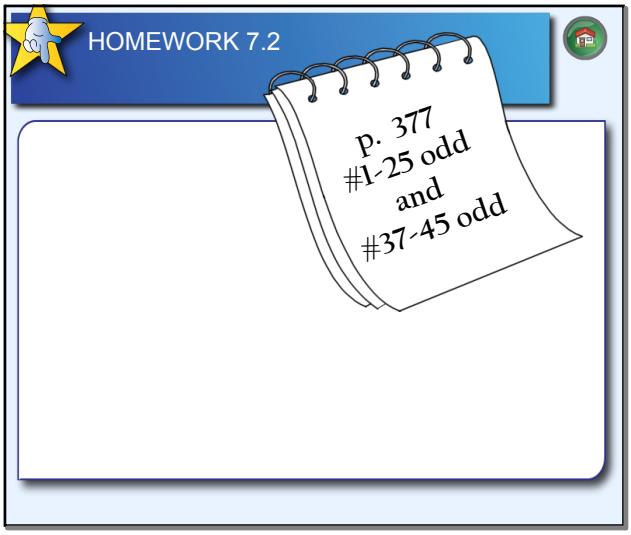

Mar 19-7:45 AM

Multiply, if possible. Then simplify.

1. $\sqrt{8} \cdot \sqrt{32}$ 2. $\sqrt[3]{4} \cdot \sqrt[3]{16}$ 3. $\sqrt[3]{9} \cdot \sqrt[3]{-81}$ 4. $\sqrt[4]{8} \cdot \sqrt[4]{32}$
5. $\sqrt{-5} \cdot \sqrt{5}$ 6. $\sqrt[3]{-5} \cdot \sqrt[3]{-25}$ 7. $\sqrt[3]{9} \cdot \sqrt[3]{-24}$ 8. $\sqrt[3]{-12} \cdot \sqrt[3]{-18}$

Simplify. Assume that all variables are positive.

9. $\sqrt{20x^3}$ 10. $\sqrt[3]{81x^2}$ 11. $\sqrt{50x^5}$ 12. $\sqrt[3]{32a^5}$
13. $\sqrt[3]{54y^{10}}$ 14. $\sqrt{200a^6b^7}$ 15. $\sqrt[3]{-250x^6y^5}$ 16. $\sqrt[4]{64x^3y^6}$

Multiply and simplify. Assume that all variables are positive.

17. $\sqrt[3]{6} \cdot \sqrt[3]{16}$ 18. $\sqrt{8y^5} \cdot \sqrt{40y^2}$
19. $\sqrt{7x^5} \cdot \sqrt{42xy^9}$ 20. $4\sqrt{2x} \cdot 5\sqrt{6xy^2}$
21. $3\sqrt[3]{5y^3} \cdot 2\sqrt[3]{50y^4}$ 22. $-\sqrt[3]{2x^2y^2} \cdot 2\sqrt[3]{15x^5y}$

Divide and simplify. Assume that all variables are positive.

23. $\frac{\sqrt{500}}{\sqrt{5}}$ 24. $\frac{\sqrt{48x^3}}{\sqrt{3xy^2}}$ 25. $\frac{\sqrt{56x^5y^5}}{\sqrt{7xy}}$ 26. $\frac{\sqrt[3]{250x^7y^3}}{\sqrt[3]{2x^2y}}$

Jan 18-2:31 PM

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

37. $\sqrt{5} \cdot \sqrt{40}$ 38. $\sqrt[3]{4} \cdot \sqrt[3]{80}$ 39. $\sqrt{x^5y^5} \cdot 3\sqrt{2x^7y^6}$
40. $5\sqrt{2xy^6} \cdot 2\sqrt{2x^3y}$ 41. $\sqrt{2}(\sqrt{50} + 7)$ 42. $3(5 + \sqrt{21})$
43. $\sqrt{5}(\sqrt{5} + \sqrt{15})$ 44. $\sqrt[3]{2x} \cdot \sqrt[3]{4} \cdot \sqrt[3]{2x^2}$ 45. $\sqrt[3]{3x^2} \cdot \sqrt[3]{x^2} \cdot \sqrt[3]{9x^3}$
46. $\frac{\sqrt{5x^4}}{\sqrt{2x^2y^3}}$ 47. $\frac{5\sqrt{2}}{3\sqrt{7x}}$ 48. $\frac{1}{\sqrt[3]{9x}}$

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