

Use your calculator. Evaluate each of the following to the nearest hundredth.

1. $\sqrt{100}$

2. $\sqrt[3]{150}$

3. $\sqrt[5]{1000}$

4. $100^{5/7}$

Write in radical form.

5. $100^{5/7}$

6. $b^{1/5}$

7. $x^{-2/3}$

8. $(2y)^{1/4}$

Write in exponential form.

9. $\sqrt[3]{150}$

10. $(\sqrt[4]{b})^3$

11. $\sqrt[5]{(5ab)^3}$

12. $\sqrt{(6a)^4}$

Simplify.

13. $\sqrt[3]{-8}$

14. $\sqrt[3]{16}$

15. $\sqrt{x^8 y^{14}}$

16. $\sqrt{36a^6 b^{20}}$

17. $\sqrt{c^{13}}$

18. $\sqrt[3]{x^8 y^{14}}$

19. $\sqrt{75d^{11}}$

20. $\sqrt[5]{a^8 b^{23}}$

21. $\sqrt{3} \cdot \sqrt{12}$

22. $\sqrt{x} \cdot \sqrt{x}$

23. $\sqrt[6]{a^4} \cdot \sqrt[6]{a^2}$

24. $\sqrt{8x} \cdot \sqrt{3x}$

25. $\frac{5}{\sqrt{3}}$

26. $\frac{10}{\sqrt{5}}$

27. $\frac{\sqrt{7}}{\sqrt{6}}$

28. $\frac{\sqrt{20}}{\sqrt{5}}$

29. $\frac{12}{\sqrt{20}}$

30. $\frac{1}{\sqrt[4]{x}}$

31. $\frac{8}{\sqrt[5]{y^3}}$

32. $\frac{3}{\sqrt[3]{2y}}$

$$25. \frac{15}{\sqrt{20}}$$

$$26. \frac{25}{\sqrt{50}}$$

$$27. \frac{6\sqrt{3}}{\sqrt{8}}$$

$$28. \frac{4\sqrt[3]{15}}{2\sqrt[3]{3}}$$

$$29. \frac{\sqrt[3]{3}}{\sqrt[3]{2}}$$

$$30. \frac{10}{\sqrt[3]{25}}$$

$$31. \sqrt{8} \cdot \sqrt{2}$$

$$32. 2\sqrt{50} \cdot 3\sqrt{2}$$

$$33. \frac{1}{2}\sqrt{12} \cdot 10\sqrt{2}$$

$$34. 4\sqrt{\frac{1}{2}} \cdot 8\sqrt{18}$$

$$35. \sqrt{x} \cdot \sqrt{x^3}$$

$$36. \sqrt{3x} \cdot \sqrt{12x^4}$$

$$40. \sqrt{6} + \sqrt{24}$$

$$41. \sqrt{63} - \sqrt{25}$$

$$42. (\sqrt{3} + 2)(\sqrt{3} - 4)$$

$$43. \sqrt{5}(\sqrt{15} - 4)$$

$$44. (2\sqrt{3} - 3)(2\sqrt{3} + 3)$$

$$45. (\sqrt{10} - 5)^2$$

Use your calculator. Evaluate each of the following to the nearest hundredth.

1. $\sqrt{100}$

10

2. $\sqrt[3]{150}$

5.31

3. $\sqrt[5]{1000}$

3.98

4. $100^{5/7}$

26.83

Write in radical form.

5. $100^{5/7}$

$\sqrt[7]{100^5}$

6. $b^{1/5}$

$\sqrt[5]{b}$

7. $x^{-2/3}$

$\frac{1}{x^{2/3}} = \sqrt[3]{\frac{1}{x^2}}$

8. $(2y)^{1/4}$

$\sqrt[4]{2y}$

Write in exponential form.

9. $\sqrt[3]{150}$

$150^{1/3}$

10. $(\sqrt[4]{b})^3$

$(b^{1/4})^3 = \boxed{b^{3/4}}$

11. $\sqrt[5]{(5ab)^3}$

$(5ab)^{3/5}$ or $5^{3/5} a^{3/5} b^{3/5}$

12. $\sqrt{(6a)^4}$

$(6a)^{4/2} = (6a)^2 = \boxed{36a^2}$

Simplify.

13. $\sqrt[3]{-8}$

-2

14. $\sqrt[3]{16} \quad \sqrt[3]{8 \cdot 2}$

$\boxed{2 \cdot \sqrt[3]{2}}$

15. $\sqrt{x^8 y^{14}}$

$x^4 y^7$

16. $\sqrt{36a^6 b^{20}}$

$6a^3 b^{10}$

17. $\sqrt{c^{13}}$

$c^6 \sqrt{c}$

18. $\sqrt[3]{x^8 y^{14}}$

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

19. $\sqrt[5]{75d^{11}}$

$\sqrt[5]{25^2 \cdot 3} = \boxed{5d^3 \sqrt[5]{3d}}$

20. $\sqrt[5]{a^8 b^{23}}$

$a b^4 \sqrt[5]{a^3 b^3}$

21. $\sqrt{3} \cdot \sqrt{12}$

$\sqrt{36} = \boxed{6}$

22. $\sqrt{x} \cdot \sqrt{x}$

$\sqrt{x^2} = \boxed{x}$

23. $\sqrt[6]{a^4} \cdot \sqrt[6]{a^2}$

$\sqrt[6]{a^6} = \boxed{a}$

24. $\sqrt{8x} \cdot \sqrt{3x} \quad \sqrt[4]{24x^2}$

$\boxed{2x \sqrt{6}}$

25. $\frac{5}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{5\sqrt{3}}{\sqrt{9}}$

$\boxed{\frac{5\sqrt{3}}{3}}$

26. $\frac{10}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{10\sqrt{5}}{\sqrt{25}}$

$\frac{10\sqrt{5}}{5} = \boxed{2\sqrt{5}}$

27. $\frac{\sqrt{7}}{\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} =$

$\frac{\sqrt{42}}{\sqrt{36}} = \boxed{\frac{\sqrt{42}}{6}}$

28. $\frac{\sqrt{20}}{\sqrt{5}} \text{ Divide} = \sqrt{4} = \boxed{2}$

29. $\frac{12}{\sqrt{20}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{12\sqrt{5}}{\sqrt{100}}$

$\frac{12\sqrt{5}}{10} = \boxed{\frac{6\sqrt{5}}{5}}$

30. $\frac{1}{\sqrt[4]{x}} \cdot \frac{\sqrt[4]{x^3}}{\sqrt[4]{x^3}} =$

$\frac{\sqrt[4]{x^3}}{\sqrt[4]{x^4}} = \boxed{\frac{\sqrt[4]{x^3}}{x}}$

31. $\frac{8}{\sqrt[5]{y^3}} \cdot \frac{\sqrt[5]{y^2}}{\sqrt[5]{y^2}} =$

$\frac{8 \cdot \sqrt[5]{y^2}}{\sqrt[5]{y^5}} = \boxed{\frac{8 \cdot \sqrt[5]{y^2}}{y}}$

32. $\frac{3}{\sqrt[3]{2y}} \cdot \frac{\sqrt[3]{4y^2}}{\sqrt[3]{4y^2}} = \frac{3 \cdot \sqrt[3]{4y^2}}{\sqrt[3]{8y^3}}$

$= \boxed{\frac{3 \cdot \sqrt[3]{4y^2}}{2y}}$

$$25. \frac{15}{\sqrt{20}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{15\sqrt{5}}{\sqrt{100}} =$$

$$\frac{15\sqrt{5}}{10} = \boxed{\frac{3\sqrt{5}}{2}}$$

$$28. \frac{4\sqrt[3]{15}}{2\sqrt[3]{3}} \text{ Divide!}$$

$$\boxed{2\sqrt[3]{5}}$$

$$31. \sqrt{8} \cdot \sqrt{2}$$

$$\sqrt{16} = \boxed{4}$$

$$34. 4\sqrt{\frac{1}{2}} \cdot 8\sqrt{18}$$

$$32\sqrt{9}$$

$$32 \cdot 3$$

$$\boxed{96}$$

$$40. \sqrt{6} + \sqrt{24}$$

$$\sqrt{6} + \sqrt{4 \cdot 6}$$

$$\sqrt{6} + 2\sqrt{6}$$

$$\boxed{3\sqrt{6}}$$

$$43. \sqrt{5}(\sqrt{15} - 4)$$

$$\sqrt{75} - 4\sqrt{5}$$

$$\sqrt{25 \cdot 3} - 4\sqrt{5}$$

$$\boxed{5\sqrt{3} - 4\sqrt{5}}$$

$$26. \frac{25}{\sqrt{50}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{25\sqrt{2}}{\sqrt{100}} =$$

$$\frac{25\sqrt{2}}{10} = \boxed{\frac{5\sqrt{2}}{2}}$$

$$29. \frac{\sqrt[3]{3}}{\sqrt[3]{2}} \cdot \frac{\sqrt[3]{4}}{\sqrt[3]{4}} = \frac{\sqrt[3]{12}}{\sqrt[3]{8}} =$$

$$\boxed{\frac{\sqrt[3]{12}}{2}}$$

$$32. 2\sqrt{50} \cdot 3\sqrt{2}$$

$$6\sqrt{100}$$

$$6 \cdot 10$$

$$\boxed{60}$$

$$35. \sqrt{x} \cdot \sqrt{x^3}$$

$$\sqrt{x^4} = \boxed{x^2}$$

$$41. \sqrt{63} - \sqrt{25}$$

$$\sqrt{9 \cdot 7} - \sqrt{25}$$

$$\boxed{3\sqrt{7} - 5}$$

$$\text{or } \boxed{-5 + 3\sqrt{7}}$$

$$44. (2\sqrt{3} - 3)(2\sqrt{3} + 3)$$

$$4\sqrt{9} + 6\sqrt{3} - 6\sqrt{3} - 9$$

$$4 \cdot 3 \quad \text{cancel} \quad -9$$

$$12 - 9$$

$$\boxed{3}$$

$$27. \frac{6\sqrt{3}}{\sqrt{8}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{6\sqrt{6}}{\sqrt{16}} =$$

$$\frac{6\sqrt{6}}{4} = \boxed{\frac{3\sqrt{6}}{2}}$$

$$30. \frac{10}{\sqrt[3]{25}} \cdot \frac{\sqrt[3]{5}}{\sqrt[3]{5}} = \frac{10 \cdot \sqrt[3]{5}}{\sqrt[3]{125}} =$$

$$\frac{10 \cdot \sqrt[3]{5}}{5} = \boxed{2 \cdot \sqrt[3]{5}}$$

$$33. \frac{1}{2}\sqrt{12} \cdot 10\sqrt{2}$$

$$5\sqrt{24} = 5\sqrt{4 \cdot 6} =$$

$$5 \cdot 2\sqrt{6} = \boxed{10\sqrt{6}}$$

$$36. \sqrt{3x} \cdot \sqrt{12x^4}$$

$$\sqrt{36x^5}$$

$$\boxed{6x^2 \cdot \sqrt{x}}$$

$$42. (\sqrt{3} + 2)(\sqrt{3} - 4) \text{ FOIL}$$

$$\sqrt{9} - 4\sqrt{3} + 2\sqrt{3} - 8$$

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

$$\boxed{-5 - 2\sqrt{3}}$$

$$45. (\sqrt{10} - 5)^2$$

$$\rightarrow (\sqrt{10} - 5)(\sqrt{10} - 5)$$

$$\sqrt{100} - 5\sqrt{10} - 5\sqrt{10} + 25$$

$$10 - 10\sqrt{10} + 25$$

$$\boxed{35 - 10\sqrt{10}}$$