

7-5

Practice

Form G

Rational Exponents and Radicals

What is the value of each expression?

1. $\sqrt[3]{64}$ 4

2. $\sqrt[3]{125}$ 5

3. $\sqrt[5]{32}$ 2

4. $\sqrt{100}$ 10

5. $\sqrt[4]{1}$ 1

6. $\sqrt{225}$ 15

7. $\sqrt[3]{729}$ 9

8. $\sqrt{289}$ 17

9. $\sqrt[3]{243}$ $3\sqrt[3]{3^2}$

Write each expression in radical form.

10. $b^{\frac{3}{2}}$ $2\sqrt{b^3}$

11. $(36x)^{\frac{1}{2}}$ $6\sqrt{x}$

12. $25y^{\frac{1}{2}}$ $25\sqrt{y}$

13. $81s^{\frac{2}{3}}$ $81\sqrt[3]{s^2}$

14. $(72b)^{\frac{1}{2}}$ $6\sqrt{2b}$

15. $(125a)^{\frac{2}{3}}$ $25\sqrt[3]{a^2}$

16. $(40x)^{\frac{1}{3}}$ $2\sqrt[3]{5x}$

17. $36t^{\frac{1}{4}}$ $36\sqrt[4]{t}$

18. $(99r)^{\frac{1}{2}}$ $3\sqrt{11r}$

Write each expression in exponential form.

19. $\sqrt[3]{b^4}$ $b^{\frac{4}{3}}$

20. $\sqrt{(3x)^4}$ $9x^2$

21. $\sqrt[3]{125d^4}$ $5d^{\frac{4}{3}}$

22. $\sqrt{49a}$ $7a^{\frac{1}{2}}$

23. $\sqrt[3]{(64b)^2}$ $16b^{\frac{2}{3}}$

24. $\sqrt[4]{256b^5}$ $4b^{\frac{5}{4}}$

25. $\sqrt{144d^4}$ $12d^2$

26. $\sqrt[3]{(27x)^2}$ $9x^{\frac{2}{3}}$

27. $\sqrt{625a^5}$ $25a^{\frac{5}{2}}$

28. You can use the formula $S = 10m^{\frac{2}{3}}$ to approximate the surface area S , in square centimeters, of a horse with mass m , in grams. What is the surface area of a horse with a mass of 4.5×10^5 grams? Round your answer to the nearest whole square centimeter. **about 58,723 sq cm**

7-5

Practice

Form K

Rational Exponents and Radicals

What is the value of each expression? The first one has been started for you.

1. $\sqrt{36} = \sqrt{6 \cdot 6}$ 6

2. $\sqrt{100}$ 10

3. $\sqrt[3]{64}$ 4

4. $\sqrt[3]{125}$ 5

5. $\sqrt[3]{1}$ 1

6. $\sqrt[4]{256}$ 4

Write each expression in radical form. The first one has been started for you.

7. $x^{\frac{1}{2}} = \sqrt{x^1}$ \sqrt{x}

8. $(25x^2)^{\frac{1}{2}}$ $5x$

9. $x^{\frac{2}{3}}$ $\sqrt[3]{x^2}$

10. $15x^{\frac{3}{4}}$ $15\sqrt[4]{x^3}$

11. $(27x^3)^{\frac{1}{3}}$ $3x$

12. $16t^{\frac{1}{5}}$ $16\sqrt[5]{t}$

Write each expression in exponential form.

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

14. $\sqrt{a^3}$ $a^{\frac{3}{2}}$

15. $\sqrt{16a}$ $4a^{\frac{1}{2}}$

16. $\sqrt{(49w)^2}$ $49w$

17. $\sqrt[3]{125d^2}$ $5d^{\frac{2}{3}}$

18. $\sqrt{(2m)^4}$ $4m^2$