Name _____ Class _____ Date _____

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

Name _____ Class _____ Date _____

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. $x^{\frac{1}{2}} = \sqrt[2]{x^1}$ $\sqrt{x}$
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. $\sqrt{(2m)^4}$ $4m^2$