Algebra 1
Review Ch. 7
Quiz 7.7-7.8 today.
Ch. 7 test is Wed.
whiteboards

Example 10

Find the next three terms in the geometric sequence
−2, 6, 18, ...

$r = {}^-3$

54, −162, 486

Example 11

Write the equation for the *n*th term of the geometric sequence -3, 12, -48, ...

$$a_1 = -3 \qquad r = -4$$

$$* \quad a_n = (-3)(-4)^{n-1}$$

$$* \quad a_{10} = (-3)(-4)^9$$
$$= 786{,}432$$

Example 12

Write a recursive formula for 3, 1, −1, −3, ….

recurs

$a_1 = 3$

$d = -2$

$a_1 = 3$

$a_n = (a_{n-1}) - 2 \quad n \geq 2$

explicit

$a_n = a_1 + (n-1)d$

$= 3 + (n-1)(-2)$

$a_n = 3 - 2n + 2$

$a_n = -2n + 5$

7-1 Multiplication Properties of Exponents

Simplify each expression.

11. $x \cdot x^3 \cdot x^5$

$x \cdot x \times x \ x \times x \times x$

x^9

12. $(2xy)(-3x^2y^5)$

$2 \cdot x \cdot y \cdot -3 \cdot x \times x \ yyyyy$

$-6 x^3 y^6$

17. $(2x^2)^3(x^3)^3$ **18.** $\frac{1}{2}(2x^3)^3$

$(2xx)(2xx)(2xx)(x \cdot x)(x \cdot x)(x \cdot x)$

$8x^{15}$

$\frac{1}{2}(2xxx)(2xxx)(2xxx)$

$4x^9$

19. GEOMETRY Use the formula $V = \pi r^2 h$ to find the volume of the cylinder.

3x

5x²
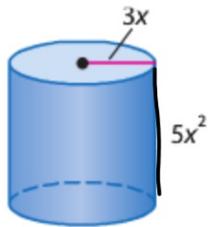
$$V = \pi (3x)^2 \, 5x^2$$

$$V = \pi (3x)(3x) \, 5 \times x$$

$$= 45\pi \, x^4$$

$A = \pi r^2$

$C = \pi d$

$A = \frac{1}{2}bh$

$\quad = \frac{b \cdot h}{2}$

7-2 Division Properties of Exponents

Simplify each expression. Assume that no denominator equals zero.

20. $\dfrac{(3x)^0}{2a} = \dfrac{1}{2a}$

21. $\left(\dfrac{3xy^3}{2z}\right)^3 = \left(\dfrac{3xyyy}{2z}\right)\left(\dfrac{3xyyy}{2z}\right)\left(\dfrac{3xyyy}{2z}\right)$
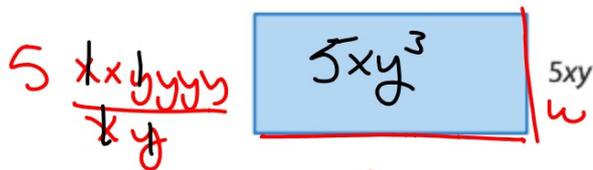
$= \dfrac{27\,x^3\,y^9}{8\,z^3}$

26. $\left(\dfrac{6xy^{11}z^9}{48x^6yz^{-7}} \right)^0$

1

27. $\left(\dfrac{12}{2} \right)\left(\dfrac{x}{y^5} \right)\left(\dfrac{y^4}{x^4} \right)$

$$\dfrac{12 \cdot x \cdot y \cdot y \cdot y \cdot y}{2 \cdot y \cdot y \cdot y \cdot y \cdot y \cdot x \cdot x \cdot x \cdot x}$$

$$\dfrac{6}{y \, x^3}$$

28. GEOMETRY The area of a rectangle is $25x^2y^4$ square feet. The width of the rectangle is $5xy$ feet. What is the length of the rectangle?

$5 \dfrac{x \times yyyy}{x y}$

$5xy^3$ $5xy$ w

ℓ

$A = \ell \cdot w$

$\dfrac{25x^2y^4}{5xy} = \dfrac{(?)(5xy)}{5xy}$

$\dfrac{3x^0}{y^4}$ $\dfrac{3}{y^4}$

$\dfrac{81x^2}{y^4}$

7-3 **Rational Exponents**

Simplify.

29. $\sqrt[3]{343}$ $= 7$

$(?)^3 = 343$

30. $\sqrt[6]{729}$ $= 3$

$(\quad)^6 = 729$

33. $256^{\frac{3}{4}}$ **34.** $32^{\frac{2}{5}}$

Solve each equation.

37. $6^x = 7776$

38. $4^{4x-1} = 32$

Try to write each term using the same base.

7-4 Scientific Notation

Express each number in scientific notation.

39. 2,300,000

40. 0.0000543

Evaluate each product or quotient. Express the results in scientific notation.

22. $(2.5 \times 10^3)(3 \times 10^4)$

23. $\dfrac{8.8 \times 10^2}{4 \times 10^{-4}}$

Note: correct scientific notation format ...

Example 8

Graph $y = 3^x + 6$. Find the y-intercept, and state the domain and range.

PT p. 455 odds

Example 9

Find the final value of $2000 invested at an interest rate of 3% compounded quarterly for 8 years.