Algebra 1B
Review Ch. 7

Ch. 7 test is tomorrow
whiteboards

Example 10

Find the next three terms in the geometric sequence $2, 6, 18, \ldots$.

Example 11

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

7-1 Multiplication Properties of Exponents

Simplify each expression.

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

$x \; xxx \; xxxxx$

x^9

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

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

$-6x^3y^6$

17. $(2x^2)^3(x^3)^3$

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

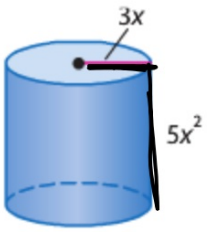
$(2xx)(2xx)(2xx)(xxx)(xxx)(xxx)$

$8x^{15}$

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

$4x^9$

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



$(\quad) = \pi (3x)(3x)(5xx)$

$= 45\pi x^4$

7-2 Division Properties of Exponents

Simplify each expression. Assume that no denominator equals zero.

20. $\frac{(3x)^0}{2a}$ $\quad \frac{1}{2a}$

21. $\left(\frac{3xy^3}{2z}\right)^3 = \left(\frac{3xyyy}{2z}\right)\left(\frac{3xyyy}{2z}\right)\left(\frac{3xyyy}{2z}\right)$

$= \frac{27x^3y^9}{8z^3}$

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

$6yx^{3}$

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

$\frac{12xyyyy}{2yyyyyxxxx}$

$\frac{6}{yx^{3}}$

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?

$A = \ell \cdot w$

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

$5\frac{1x1yyyy}{1y} = 5x^1y^3$

$5xy$

7-3 Rational Exponents

Simplify.

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

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

$(?)^3 = 343$

7

$(\quad)^6 = 729$

3

33. $256^{\frac{3}{4}}$

$\sqrt[4]{256}$

$(4)^3$

64

34. $32^{\frac{2}{5}}$

$\sqrt[5]{32}$

$(2)^2$

4

Try to write each term using the same base.

Solve each equation.

37. $6^x = 7776$

$6^x = 6^5$

$x = 5$

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

$(2^2)^{4x-1} = (2^5)$

$8x - 2 = 5$

$+2 \quad +2$

$\frac{8x}{8} = \frac{7}{8}$ $\quad x = \frac{7}{8}$

7-4 Scientific Notation

Express each number in scientific notation.

39. 2,300,000

40. 0.0000543

2.3×10^{6}

5.43×10^{-5}

Express each number in standard form.

20. 2.9×10^{-5}

21. 9.1×10^{6}

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

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

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

2 + 4

2.2×10^{6}

$(8.3 \times 10^{4})(6.1 \times 10^{5})$

9 + 1 − 1

50.63×10^{9}

5.063×10^{10}

Note: correct scientific notation format ...

Example 8

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

Example 9

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