Algebra 1
Review Ch. 7
Quiz 7.3-7.4 today
MCT 7.1-7.4 is tomorrow

7-4 Scientific Notation

Express each number in scientific notation.

39. 2,300,000 $\overset{+6}{\underset{-6}{}}$

$$2.3 \times 10^{6}$$

40. 0.0000543

Express each number in standard form.

20. 2.9×10^{-5} .0000029

21. 9.1×10^{6} 0.000029

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

22. $(2.5 \times 10^3)(3 \times 10^4)$ 7.5×10^7

23. $\dfrac{8.8 \times 10^2 + 4}{9 \times 10^{-4}}$

$0.977 \times 10^6 \; \overset{+1}{\underset{-1}{\cdots}}$

9.77×10^5

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

$$\left(256^{\frac{3}{4}}\right)^{3}$$

$$\left(4\right)^{3}$$

64

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

$$\left(32^{\frac{1}{5}}\right)^{2}$$

$$\left(2\right)^{2}$$

4

Solve each equation.

37. $6^x = \boxed{7776}$

$6^x = 6^5$

$x = 5$

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

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

$2^{8x-2} = 2^5$

$8x - 2 = 5$

$\quad\ +2 \quad +2$

$\overline{\quad\quad\quad\quad\quad}$

$\dfrac{8x}{8} = \dfrac{7}{8}$

Simplify each expression.

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

$\downarrow \quad \downarrow \quad \downarrow$

$x \; xxx \; x \, x \, x \times x$

x^9

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

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

$-6x^3y^6$

17. $(2x^2)^3 \boxed{(x^3)^3}$ **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.

3x

5x²

$V = \pi r^2 h$

$V = \pi \cdot 3x \cdot 3x \cdot 5 \times x$

$V = 45\pi x^4$

$=$
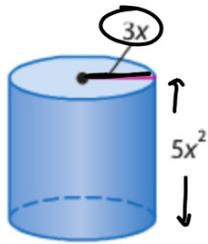
Simplify each expression. Assume that no denominator equals zero.

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

$\dfrac{1}{2a}$

21. $\left(\dfrac{3xy^3 z}{2z}\right)^3$

$$\left(\dfrac{3xyyy z}{2zz}\right)\left(\dfrac{3xyyy z}{2zz}\right)\left(\dfrac{3xyyy z}{2zz}\right)$$

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

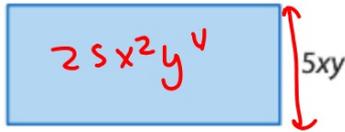**26.** $\left(\dfrac{6xy^{11}z^9}{48x^6yz^{-7}} \right)^0$

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

$$\dfrac{12 \cancel{x} \cancel{y}\cancel{y}\cancel{y}y}{2 \cancel{y}\cancel{y}\cancel{y}\cancel{y}y \cancel{x}xxx}$$

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

$\boxed{A = \ell \cdot w}$

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?

$25x^2y^4$ $5xy$

?

$$\frac{(?)(5xy)}{5xy} = \frac{25x^2y^4}{5xy} = \frac{25 \cancel{x} xy \cancel{y} yy}{5 \cancel{x} y} \quad 5xy^3$$

7-3 Rational Exponents

Simplify.

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

$?^3 = 343$

7

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

$?^6 = 729$

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

$$S\sqrt{12ab}$$

$$(343)^{\frac{1}{3}}$$

$$S\left(12ab\right)^{\frac{1}{2}}$$