

Algebra 1

Scientific Notation;
Fractional Exponents



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Overview

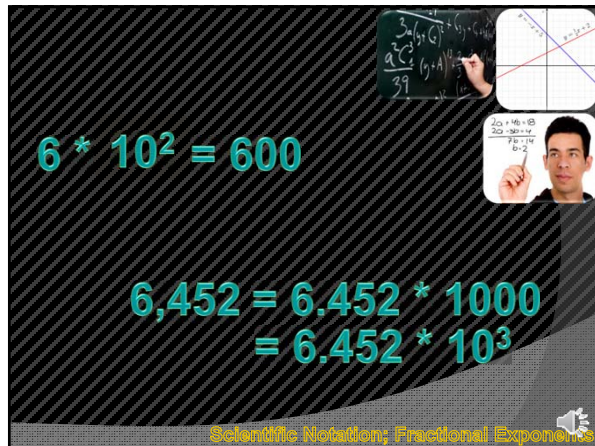
$6 * 100 = 600$

6.0000

06.0



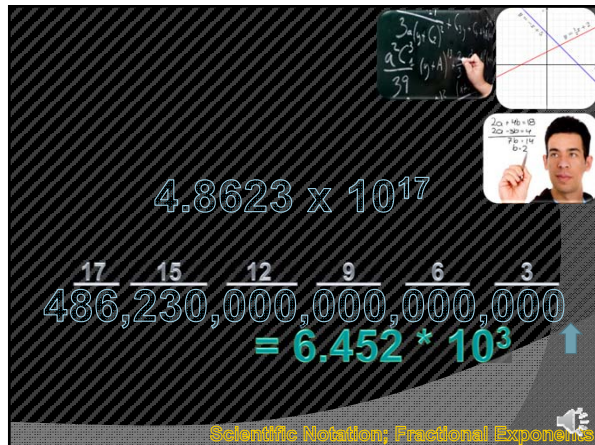
Scientific Notation; Fractional Exponents



$6 * 10^2 = 600$

$6,452 = 6.452 * 1000$
 $= 6.452 * 10^3$

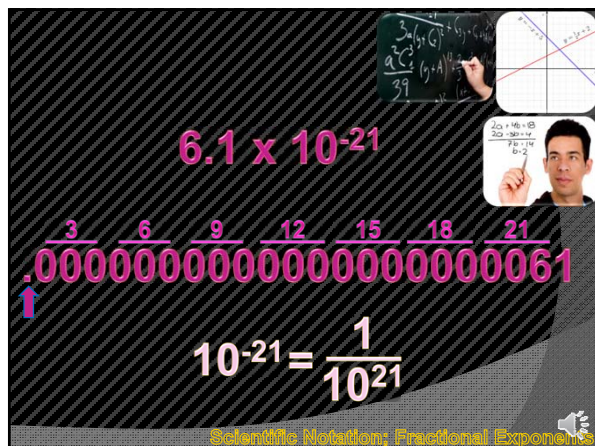
Scientific Notation; Fractional Exponents



$4.8623 * 10^{17}$

$486,230,000,000,000,000$
 $= 4.8623 * 10^{17}$

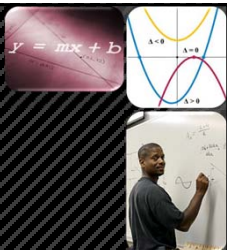
Scientific Notation; Fractional Exponents



$6.1 * 10^{-21}$

$.000000000000000000000061$
 $= 6.1 * 10^{-21}$

Scientific Notation; Fractional Exponents



Rewrite this number using Scientific Notation:
17,200,000,000,000

You Try!

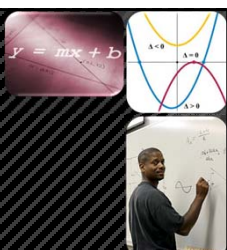


1.72×10^{13}

Rewrite this number using Scientific Notation:
17,200,000,000,000

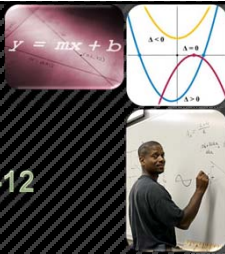
↑³ 12 9 6 3

You Try!



Rewrite this number using Scientific Notation:
.00000000000028

You Try!

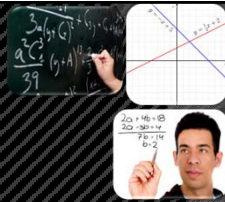


2.8×10^{-12}

Rewrite this number using Scientific Notation:

.00000000000028

3 6 9 12 ↑ You Try!



Product of Powers Property
 $x^3 \cdot x^4 = x^{3+4} = x^7$

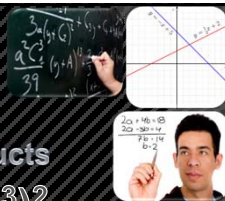
Quotient of Powers Property
 $\frac{x^4}{x^3} = x^{4-3} = x$

Power of a Product Property
 $(xy)^3 = x^3y^3$

Power of Quotients Property
 $\left(\frac{x}{y}\right)^3 = \frac{x^3}{y^3}$

Power of Powers Property
 $(x^3)^4 = x^{3 \cdot 4} = x^{12}$

Scientific Notation; Fractional Exponents



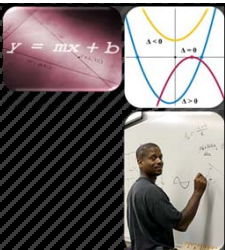
$(1.6 \times 10^3)^2$

Power of Products
 $= (1.6)^2 \times (10^3)^2$

Power of Powers
 $= 2.56 \times 10^6$

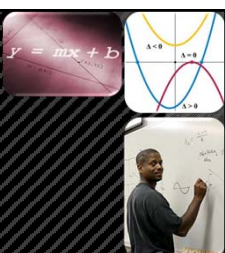
Scientific Notation; Fractional Exponents

Simplify:
 $(1.3 \times 10^3)(1.2 \times 10^5)$



You Try!

Simplify:
 $(1.3 \times 10^3)(1.2 \times 10^5)$

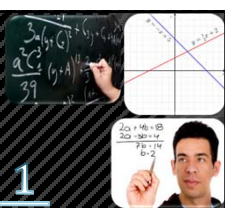


You Try!

$$= 1.3 \times 1.2 \times 10^3 \times 10^5$$

$$= 1.56 \times 10^8$$

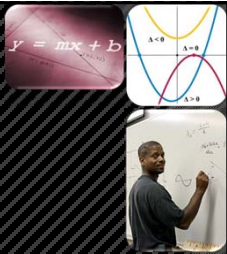
$9^{\frac{1}{2}} = \sqrt{9} = 3$



$9^{-\frac{1}{2}} = \frac{1}{\sqrt{9}} = \frac{1}{3}$

$27^{\frac{1}{3}} = \sqrt[3]{27} = 3$

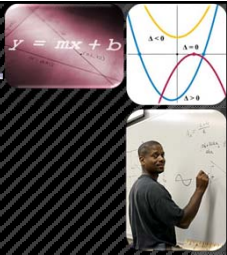
Scientific Notation; Fractional Exponents



Simplify this expression:

$$\frac{1}{64^{-1/3}}$$

You Try It!



$$\frac{1}{64^{-1/3}} = 64^{1/3} = \sqrt[3]{64}$$

$$= 4$$

Simplify this expression:

$$\frac{1}{64^{-1/3}}$$

You Try It!

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