

Unit ¹⁴ ~~8~~ Study Guide 9/22/2014

Convert number from scientific notation to standard form.

$$5.82 \times 10^7$$
$$58,200,000$$

Convert number from scientific notation to standard form.

$$1.043 \times 10^{-3}$$
$$0.001043$$

Convert number from standard form to scientific notation.

$$0.00000958$$
$$9.58 \times 10^{-6}$$

Convert number from standard form to scientific notation.

$$77,600,000,000$$
$$7.76 \times 10^{10}$$

Compare each number. Place a $<$, $>$, or $=$ in the

$$4 \times 10^{-7} > 9 \times 10^{-8}$$
$$0.0000004 \quad 0.0000009$$

$$3.16 \times 10^{-5} > 0.0000316$$
$$0.0000316$$

Simplify the following:

$$(3.6 \times 10^5)(8 \times 10^4)$$
$$28.8 \times 10^9$$
$$2.88 \times 10^{10}$$

7.1×10^{-3}
 6.248×10^4

Simplify the following:

$$\frac{18.62 \times 10^3}{3.8 \times 10^{-2}}$$

4.9
~~18.62~~ $\times 10^5$
~~3.8~~

Simplify the following: 6.248×10^5

$(0.0071)(8.8 \times 10^7)$
 0.06248×10^7
 6.248×10^5

Simplify the expression completely. Use properties of exponents when possible.

$$\frac{3^4}{3^8} = 3^{-4}$$

$$= \frac{1}{3^4}$$

$$= \frac{1}{81}$$

Simplify the expression completely. Use properties of exponents when possible.

$$(-16)^2$$

$$-16 \times -16 = 256$$

$x^5 \cdot x^{11} = x^{16}$

Simplify the expression completely. Use properties of exponents when possible.

$$(4^{21} \times 4^{32}) \times 4^{-56}$$

$$4^{53} \times 4^{-56}$$

$$4^{-3}$$

$x^{-a} = \frac{1}{x^a}$

Simplify the expression completely. Use properties of exponents when possible.

$$\frac{(5^6)^8}{(5^{29})(5^{15})}$$

~~5⁴⁸~~
~~5⁴⁴~~
~~5⁴~~
~~5~~

$\frac{1}{4^3}$
 $\frac{1}{64}$

5^{48}
 5^{44}
 5^4
 625

Simplify the expression completely. Use properties of exponents when possible.

$$\left(\frac{2a^2}{6a^4b^{-3}} \right)^2$$

$\frac{4a^4}{36a^8b^{-6}} = \frac{1a^4b^6}{36a^8}$
 $= \frac{1a^{-4}b^6}{9} = \frac{b^6}{9a^4}$

Simplify the expression completely. Use properties of exponents when possible.

Using exponent rules, find what the value of c would be to make a true statement.

$$\frac{6^{20}}{6^c} = 36$$

$c = 18$

Simplify the following:

$$(10 - 8) \times (-4) \div 2 \times 4$$

$$2 \times (-4) \div 2 \times 4$$

$$-8 \div 2 \times 4$$

$$-4 \times 4$$

-16

Simplify the following:

$$1 - 10(-10 + 9)^4$$

$$1 - 10(-1)^4$$

$$1 - 10(1)$$

$$1 - 10$$

-9

$$\underbrace{-1 \times -1}_1 \times \underbrace{-1 \times -1}_1$$

Simplify the following:

$$-2(-9 + (-9) + 2^2)$$

$$-2(-9 + (-9) + 4)$$

$$-2(-18 + 4)$$

$$-2(-14)$$

28

Simplify the following:

$$\frac{8}{-2+4+8+(-4)+(-6)}$$

$$\frac{8}{-6+8+(-4)+(-6)}$$

$$\frac{8}{2+(-4)+(-6)}$$

$$\frac{8}{-2+(-6)}$$

$$\frac{8}{-8} = -1$$

$$\textcircled{1} \left(\frac{5a}{3x^2}\right)^{-2} = \frac{1}{\left(\frac{5a}{3x^2}\right)^2} = \frac{1}{\frac{25a^2}{9x^4}} = \frac{9x^4}{25a^2}$$

Extra for SG $\frac{9x^4}{25a^2}$

$$\textcircled{2} 6^2 \cdot 6^{-4} = 6^{-2} = \frac{1}{36}$$

$$\textcircled{3} (5m^9)(-4m^4) = -20m^{13}$$

$$\textcircled{4} 10x \cdot (5x^3)^4 = 10x \cdot 5^4 x^{12} = 10x \cdot 625 x^{12} = 6250x^{13}$$

$$\textcircled{5} \left(\frac{(2x)^2}{x^2}\right)^3 = \left(\frac{4x^2}{x^2}\right)^3 = \frac{64x^6}{x^0} = 64$$

$$\textcircled{6} (8.96 \times 10^{10}) + (4.5 \times 10^6)$$

$$(8.96 \times 10^{10}) + (0.00045 \times 10^{10})$$

$$\boxed{8.96045 \times 10^{10}}$$