

**Math 0020 July 10, 2007 Test 2 KEY**

Simplify and leave your answer with only positive exponents.

1)  $x^8x^3 = x^{11}$       2)  $a \cdot a^3 \cdot a^5 = a^9$       3)  $(2x)^3 = 8x^3$   
 4)  $(y^4)^7 = y^{28}$       5)  $(3x^4y)(2x^3y^7) = 6x^7y^8$       6)  $\frac{y^9}{y^5} = y^4$   
 7)  $\frac{x^{10}}{x^{17}} = x^{-7} = \frac{1}{x^7}$       8)  $(x^2y^{-3})^4 = x^8y^{-12} = \frac{x^8}{y^{12}}$   
 9)  $\frac{8x^{-3}}{2x^2y^{-7}} = \frac{4y^7}{x^5}$       10)  $\left(\frac{2x^5}{y^4}\right)^2 = \frac{4x^{10}}{y^8}$

Express each in scientific notation.

11)  $410,000,000,000 = 4.1 \times 10^{11}$       12)  $0.00095 = 9.5 \times 10^{-4}$

Express each as a decimal.

13)  $-3.65 \times 10^5 = -365,000.$       14)  $2.4 \times 10^{-3} = 0.0024$

Perform the operations.

15)  $\frac{5.4 \times 10^{24}}{3.2 \times 10^{15}} = 1.6875 \times 10^9$       16)  $(4 \times 10^{1000}) \cdot (2 \times 10^{7000}) = 8 \times 10^{8000}$

17) Find the x and y axis intercepts for the line  $2x + 3y = 12$ .

The x-axis intercept is (6,0), and the y-axis intercept is (0,4).

18) Find the slope of the line passing through the points (2,3) and (5,15).

$m = \frac{15-3}{5-2} = 4$

19) Find the equation of the line with slope  $m = 4$  and y-axis intercept  $b = 5$ .

$y = 4x + 5$

20) Graph the line  $y = -2x + 1$ .21) Graph the line  $y = 4$ 22) Graph the line  $x = -3$ 23) Find the slope and y-axis intercept for the line  $6x + 3y = 18$ 

$y = -2x + 6$

The slope is -2, and the y-axis intercept is (0, 6).

24) Graph the inequality  $y \leq 2x + 1$