

**Homework Worksheet #21**

**Complete all questions (show all work). Homework COLLECTED on FRIDAY!**

**Monday: HW #21A**

Simplify each expression. Write using **POSITIVE** exponents.

- 1) a)  $\frac{5^3 \cdot 5^{-8}}{5^{-3}}$   $5^{-2} = \frac{1}{5^2}$  b)  $\frac{w^6}{w^{-4}}$   $w^{10}$  c)  $x^{-7}$   $\frac{1}{x^7}$   
 2) a)  $\frac{3^5}{3^7}$   $3^{-2} = \frac{1}{3^2}$  b)  $(2^2x^3)^4$   $2^8x^{12}$  c)  $w^2 \cdot w^3$   $w^5$

Write the following numbers in standard notation:

- 3) a)  $2.1 \times 10^5$  210,000 b)  $5.6 \times 10^{-3}$  .0056

Write the following numbers in scientific notation:

- 4) a) 0.000032  $3.2 \times 10^{-5}$  b) 8,900,000,000  $8.9 \times 10^9$

**Tuesday: HW #21B**

Simplify each expression.

- 5) a)  $-3^2$   $-3 \cdot 3 = -9$  b)  $(-3)^2$   $-3 \cdot -3 = 9$  c)  $3^0$  1

6) Is the following number written in scientific notation? Explain.  $0.6 \times 10^{-2}$  No  
b/c The coefficient is less than 1.

$6.0 \times 10^{-1}$

7) What is the solution to  $2(x+3) = 2x+5$

$$\begin{array}{r} 2x+6 = 2x+5 \\ -6 \quad -6 \\ \hline 2x = 2x-1 \\ -2x \quad -2x \\ \hline 0 = -1 \end{array}$$

$0 \neq -1$

- a.)  $x = 2\frac{3}{4}$  b.)  $x = -2\frac{3}{4}$  c.) no solutions d.) infinite solutions

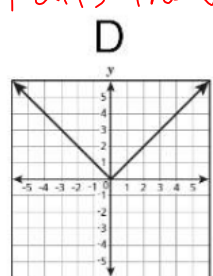
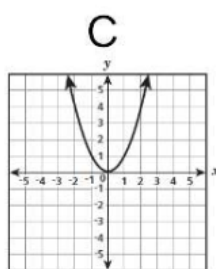
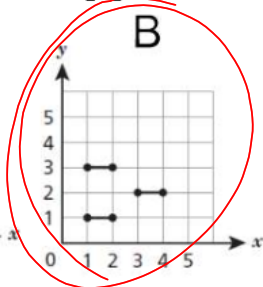
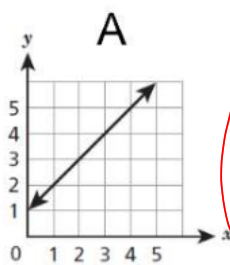
**Wednesday: HW #21C**

- 8) Sharon solved the following problem **INCORRECTLY**. Explain in words the error she made, and show the CORRECT solution.

$$5^4 \cdot 5^2 = 5^8 \quad 5^6$$

She multiplied the powers when she should have added them.

- 9) Which of the following graphs shown is not a function. *Fails the vertical line test*



**Thursday: HW #21D:**

**FAIR GAME review.**

10.)  $\frac{10^6}{10^{-2}}$   $10^8$

11.  $(2.1 \times 10^6) \cdot (6.5 \times 10^{-2})$

$13.65 \times 10^4$   
 $\underline{1.365 \times 10^5}$

- 12.) Write  $3.2 \times 10^{-3}$  in standard form.

- a.) 3.2000
- b.) 0.0032
- c.) 32,000
- d.) -3,200

- 13.) Which equation does not represent a linear function?

- a.)  $y = 3x^2 + 4$
- b.)  $y = -3x - 7$
- c.)  $y = \frac{x}{4} + 7$
- d.)  $2x + 3y = 6$

- 14.) Explain in words how to find the solution to  $\frac{x^6}{x^3}$ . Keep the base

subtract the powers.