

**Directions:** 1) Write what you know. 2) Simplify. 3) Box your final answer

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1. Simplify and write as an expression with positive exponents:

a).  $\frac{(2xy^3)^3}{2x^3y^2}$

b).  $\frac{5^2}{(-5)^3}$

c).  $^{-3}\sqrt{27}$

d).  $\sqrt[4]{\left(\frac{ab^{-1}}{a^2}\right)^8}$ 

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2. Solve the following system of equations

$$3y + 3 = 6x$$

$$2y - 4x = 6$$

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3. Graph the linear system

$$\begin{cases} y = x - 3 \\ 3y - 12x = -21 \end{cases}$$

Estimate the solution from the graph. (do not solve algebraically).

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4. Write the equation of the line that passes through the following set of points:

a).  $(-1, 1)$  &  $(4, 1)$

b).  $(3, -1)$  &  $(5, -3)$ 

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5. An apparel company sells custom made T-shirts to organizations. The cost  $C(x)$  and revenue  $R(x)$  equations for  $x$  T-shirts are:

$$C(x) = 15x + 1000 \text{ and } R(x) = 20x.$$

Find the break even point and sketch the graph.

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6. Maria's excellent grades earned her two different scholarships. In total she has received \$3000. She puts each scholarship in a different savings account. If one scholarship earns her 5% annual interest and the other 7%, find the amount of each investment if the total interest earned is \$200

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7. David bought his house in 1995 for \$300,000. If the house price increased at a steady rate and in 2000 his house worth was \$400,000

a). Find a formula that to represent the value of the house  $V(t)$  as a function of time  $t$ .

b). The house got sold in 2005, how much did he get for it?

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8. Change the following units (note:  $1ft = 30.5cm = 0.30m$ )

a). 1 day to minutes

b). 100 ft to meters