Name: _____

Solve the following problems **without a calculator**. You _MUST_ show your work. ***NO WORK = NO CREDIT.***

1. Alicia bought fabric from a fabric store on 2 different occasions. The data from her purchases is recorded below.	2. Write the equation in $y = mx + b$ form of the line with a slope of -3 which passes through (-1,6).

yards of fabric	total cost
4.5	$9.45
2.2	$4.62

What is the cost per yard of fabric?

3. Write the linear equation represented by the table.	4. Suppose you can rent a car for either $35 a day plus $.40 per mile or for $20 a day plus $.55 per mile.

x	-2	0	2	4
y	10	8	6	4

    a. Write both equations for this scenario.

    b. How many miles will it take for the cost to be the same?

Solve the following problems **without a calculator**. You _MUST_ show your work. ***NO WORK = NO CREDIT.***

1. Write the equation of the line through points (0,-3) and (6,4).	2. A taxi company charges $3 for the first mile and then $1.75 for each mile traveled after that.

    a. What is the initial value?

    b. What is the rate of change?

    c. Write the equation of the line.

3. Simplify.

$$\frac{5^3 \cdot 5^{-1} \cdot 2^{-3}}{2^{-2} \cdot 5^8 \cdot 5^2 \cdot 2^4}$$

4. In 2001, the average price (in dollars) of a gallon of gas could be represented by the equation $y=1.4x$, where x represents the number of gallons of gas. The table below shows the average price of gas in 2009.

# of gallons	3	5	8	9
price	$10.59	$17.65	$18.24	$31.77

How much more is the average price of a gallon of gas in 2009 compared to 2001?

Solve the following problems **without a calculator**. You _MUST_ show your work. ***NO WORK = NO CREDIT.***

1. Turner's Computers has certain software packets on sale at 4 for $20 with a limit of 4 at the sale price. Additional software is available at the regular price for $10 each.
 	
   a. Write the expression you could use to find the cost of 6 software packets.
 	
   b. How much would 6 software packets cost?
	2. Write the equation of the line.
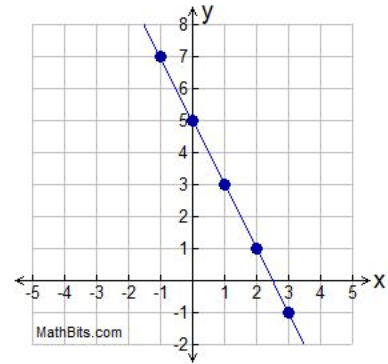
3. Which equation has a slope of -1 and an x-intercept of 2? Show work for credit.
 	
   a. $x + y = 2$
 	
   b. $x - y = 2$
 	
   c. $x + y = -2$
 	
   d. $x - y = -2$
	4. A linear equation $y = -5x + 6$ is modified so that the rate of change is tripled, but the y-intercept remains the same. Write the modified equation.

Solve the following problems **without a calculator**. You _MUST_ show your work. ***NO WORK = NO CREDIT.***

1.
<table><tr><td>x</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>y</td><td>5</td><td>6</td><td>7</td><td>8</td></tr></table>
   a. What is the slope?
 	
   b. What is the y-intercept?
	2. The following ordered pairs (x,y) define the relationship Q. Is Q a function? Explain your answer.
	
	   {(-2,1), (-1,2), (1,1), (2, -1)}

3. The equation of Funcion A is $y = 3x - 18$. Function B contains the points in the table below. Compare the slopes and y - intercepts. <table><tr><td>x</td><td>y</td></tr><tr><td>-3</td><td>-19</td></tr><tr><td>3</td><td>-17</td></tr><tr><td>9</td><td>-15</td></tr></table>	4. Which function has the greatest slope? Explain. Function 1: $y = x + 2$ Function 2: <table><tr><td>x</td><td>-2</td><td>0</td><td>2</td></tr><tr><td>y</td><td>-6</td><td>-3</td><td>0</td></tr></table>