Math 099-030 - Fall 2009 - Test 1

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Instructions. Only calculators are allowed on this examination. Point values of each problem are indicated. **Always use the appropriate wording and units of measure in your answers (when applicable). SHOW YOUR WORK NEATLY, PLEASE (no work, no credit).**

1. Write each sentence with an equation. Let x be the input. Let y be the output. The output is

   (a) (*7pts*) Six more than twice the input.

   $Y = .2X + 6$

   (b) (*7pts*) Twenty less than 6% of the input.

   $6\% = \frac{6}{100} = 0.06$; $Y = .06X - 20$

   (c) (*7pts*) The opposite of three times the reciprocal of the input.

   $Y = -3 \cdot \frac{1}{X}$ OR $Y = -\frac{3}{X}$

2. (*30pts*) The following is an input-output table, where the input is the amount of a purchase made and the output is the discount received

x=Total Purchase	y=Discount	Model
\$0 to \$149.99	4% of the purchase	$Y = .04X$
\$150 to \$499.99	5.5% of the purchase	$Y = .055X$
\$500 and over	\$30 or 7% of the purchase whichever is greater	$Y = 30$ OR $Y = .07X$ WHICHEVER IS GREATER

$Y = .07X$

   Fill the third column, writing each rule with an equation in x and y.

   $4\% = \frac{4}{100} = .04$; $5.5\% = \frac{5.5}{100} = .055$; $7\% = \frac{7}{100} = .07$

3. (*24pts*) Use the table of Exercise 2 to find what discount is received on each of these purchases.

Total Purchase	Discount
\$500	\$ 35
\$450	\$ 24.75
\$700	\$ 49.00
\$70	\$ 2.8

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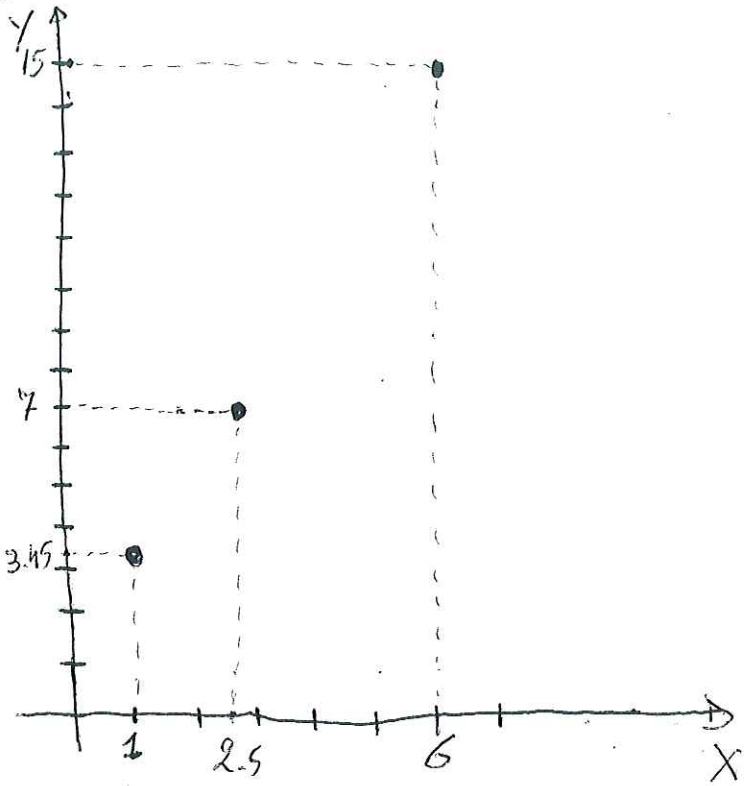
4. (25*pts*) Several sizes of packaged Fuller's coffee beans are available at the Privatix food store: 1 pound at \$3.45, 2.5 pounds at \$7, and 6 pounds at \$15. Graph the weight and cost for the packaged choices as individual ordered pairs.

LB X	$ Y
1	3.45
2.5	7
6	15



5. (16*pts*) Combine like terms in the following expressions:

(a) $4x + 5y - 2x + y + 1$

$= 4X - 2X + 5Y + Y + 1 = \boxed{2X + 6Y + 1}$

(b) $2x^2 - 3x + 2x(1 - x)$

$2X^2 - 3X + 2X - 2X^2 = 2X^2 - 2X^2 - 3X + 2X =$

$= 0X^2 - X = -X$

6. (9*pts*) Combine like terms in the expression $-3.89c - 42.39d + 50.00c + 3\frac{1}{4} - \frac{1}{2}$.

$-3.89c + 50.00c - 42.39d + 3 + \frac{1}{4} - \frac{1}{2}$

$= 46.11c - 42.39d + 3 + \frac{1-2}{4}$

$= 46.11c - 42.39d + 3 - \frac{1}{4}$

$= 46.11c - 42.39d + \frac{12-1}{4} = 46.11c - 42.39d + \frac{11}{4}$

OR $46.11c - 42.39d + 2\frac{3}{4}$ 2

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