Name _____

Instructions: Put all answers on the homework sheet and attach pages to show work. All work must be shown to receive credit. All answers must be exact unless otherwise indicated. Simplify answers as much as possible even if not specifically noted.

1. Solve for the variable.
    a. $10.3 - 6x = -2.3$

    b. $2(x + 3) = x + 5$

    c. $-3(2w - 7) - 10 = 9 - 2(5w + 4)$

    d. $\dfrac{2+h}{9} + \dfrac{h+1}{3} = \dfrac{1}{3}$

    e. $5x - (x + 4) = 5 + 4(x - 2)$

    f. $\dfrac{n+1}{8} - \dfrac{2-n}{3} = \dfrac{5}{6}$

    g. $3x + 2(x + 4) = 5(x + 1) + 3$

    h. $7x^2 + 2x - 3 = 6x(x + 4) + x^2$

2. A rectangular field is five times as long as it is wide. If the perimeter of the field is 500 yards, what are the field's dimensions?

3. This year's salary, $42,074, is a 9% increase over last year's salary. What was last year's salary?

4. The cost C to produce x number of skateboards is C = 100 + 20x. The skateboards are sold wholesale for $24 each, so revenue is given by R = 24x. Find how many skateboards the manufacturer needs to produce and sell to break even (i.e. the fewest number of skateboards for which Revenue is equal to or exceeds cost).

5. The cost of tuition at the local community college is $49.30 per credit hour for in-state students, and $182.50 per credit hour for out-of-state students.

a. Write an algebraic expression, y1, for the cost of in-state tuition. Let x be the number of credit hours.

b. Write an algebraic expression, y2, for the cost of out-of-state tuition. Let x be the number of credit hours.

c. Complete the table.

Credit Hours	2	3	4	5	6
In-state tuition					
Out-of-state tuition					

d. Find the tuition due is Mandy, an in-state student, is taking a 3-hour math course, a 4-hour science course, a 2-hour study skills course, a 3-hour history course and a 3-hour Spanish course? The science course has an additional $15 fee.

e. Describe the process you used to find this value numerically.

6. Samuil has been shopping for tools and has picked out several at Sears. Next month, Sears is having a tool sales and all tools in the store will be discounted 30%. (Solve the problem numberically.)

a. Write an algebraic representation of the sale price, y1, in terms of the price, x, on the price tag.

b. Complete the table an find the cost of each item on sale, given the price on the price tag.

Item	Hammer	Drill	Sander	Glue Gun	Screwdriver Set	Socket wrench set
Price Tag	$9.95	$29.95	$49.75	$19.95	$27.95	$79.95
Sale Price						

c. If he purchases all the items when on sale, what will his total bill be before taxes?

d. What is the total after taxes if a 7% tax is added to the bill?

e. How much did he save before taxes by waiting for the sale?

7. An object is dropped from the top of the Nations Bank Tower in Atlanta, Georgia. Neglecting air resistance, the height of the object at time x seconds is given by $y = -16x^2 + 1050$ where y is measured in feet. Use a table to determine the following:
a. What is the object's maximum height? Give a table that you used to determine the answer.

Time				
Height				

b. To the nearest tenth of a second, determine when the object hits the ground. Give a table that you used to determine the answer.

Time				
Height				