

Name: _____
Date: _____
Class: _____

Algebra
Review
Graded Homework 28

Show all of your work for every problem. The numbers in the brackets are the points that each problem is worth. Multiple Choice Problems are worth 3.

NO WORK = ZERO CREDIT

- 1) [4] A landscaper is creating a rectangular flower bed such that the width is half of the length. The area of the flower bed is 34 square feet. Write and solve an equation to determine the width of the flower bed, to the *nearest tenth of a foot*.

- 2) [3] Albert says that the two systems of equations shown below have the same solutions.

First System	Second System
$8x + 9y = 48$	$8x + 9y = 48$
$12x + 5y = 21$	$-8.5y = -51$

Determine and state whether you agree with Albert. Justify your answer.

- 3) [4] The equation to determine the weekly earnings of an employee at The Hamburger Shack is given by $w(x)$, where x is the number of hours worked.

$$w(x) = \begin{cases} 10x, & 0 \leq x \leq 40 \\ 15(x - 40) + 400, & x > 40 \end{cases}$$

Determine the difference in salary, *in dollars*, for an employee who works 52 hours versus one who works 38 hours.

Determine the number of hours an employee must work in order to earn \$445. Explain how you arrived at this answer.

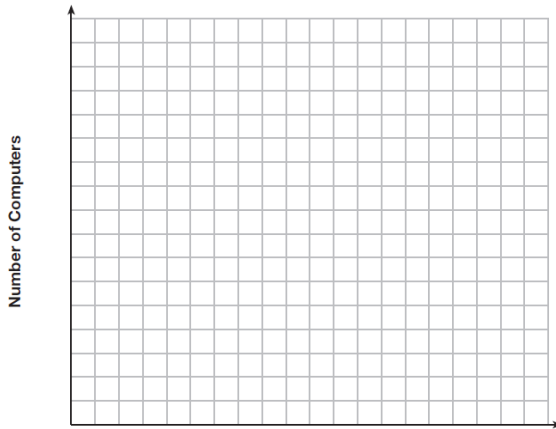
- 4) [3]

Dylan invested \$600 in a savings account at a 1.6% annual interest rate. He made no deposits or withdrawals on the account for 2 years. The interest was compounded annually. Find, to the *nearest cent*, the balance in the account after 2 years.

5) [4]

An on-line electronics store must sell at least \$2500 worth of printers and computers per day. Each printer costs \$50 and each computer costs \$500. The store can ship a maximum of 15 items per day.

On the set of axes below, graph a system of inequalities that models these constraints.



6) [3]

John and Sarah are each saving money for a car. The total amount of money John will save is given by the function $f(x) = 60 + 5x$. The total amount of money Sarah will save is given by the function $g(x) = x^2 + 46$. After how many weeks, x , will they have the same amount of money saved? Explain how you arrived at your answer.

7) [3] What are the solutions to the equation $x^2 - 8x = 24$?

(1) $x = 4 \pm 2\sqrt{10}$

(3) $x = 4 \pm 2\sqrt{2}$

(2) $x = -4 \pm 2\sqrt{10}$

(4) $x = -4 \pm 2\sqrt{2}$

8) [3] The distance a free falling object has traveled can be modeled by the equation $d = \frac{1}{2}at^2$, where a is acceleration due to gravity and t is the amount of time the object has fallen. What is t in terms of a and d ?