

**Math 80**  
**Exam 1**  
**January 29th, 2010**

Name: \_\_\_\_\_

1. Your exam contains 8 questions and 5 pages; Please make sure you have a complete exam.
2. The entire exam is worth 100 points. Point values vary and these are indicated on each problem. You have 50 minutes for this exam.
3. Make sure to **ALWAYS SHOW YOUR WORK**. If in doubt, ask for clarification.
4. Simplify answers as much as possible.
5. Put a box around your final answer where applicable.
6. No calculators are permitted for this exam.
7. If you need extra space, use the back of the exam and clearly indicate this.
8. You are allowed one 3" × 5" notecard for handwritten notes (both sides).

Problem	Total Points	Score
1	24	
2	15	
3	4	
4	9	
5	12	
6	13	
7	12	
8	11	
Total	100	

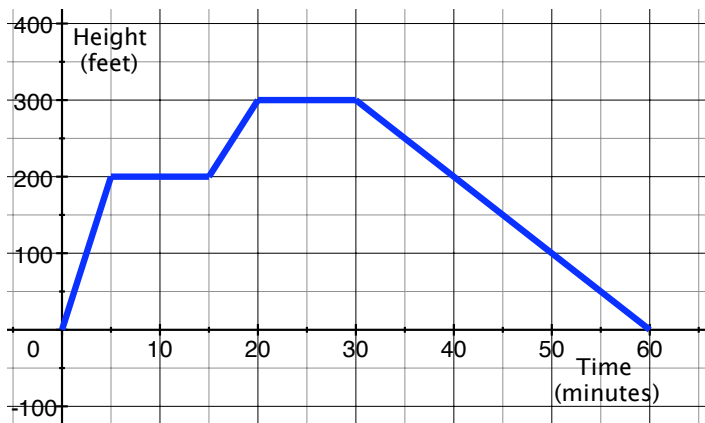
1. (24 pts.) Solve the following equations using the techniques from chapter 2. (No guessing and checking.)

(a) (9 pts.)  $1.5t - 19 = 1 + 6.5t$

(b) (8 pts.)  $3(x + 2) - 1 = x + 1 + 2x$

(c) (7 pts.)  $\frac{3}{4}m = -9$

2. (15 pts.) The **height of a hot air balloon** is shown in the graph below. The balloon increases height twice and then descends (decreases height).

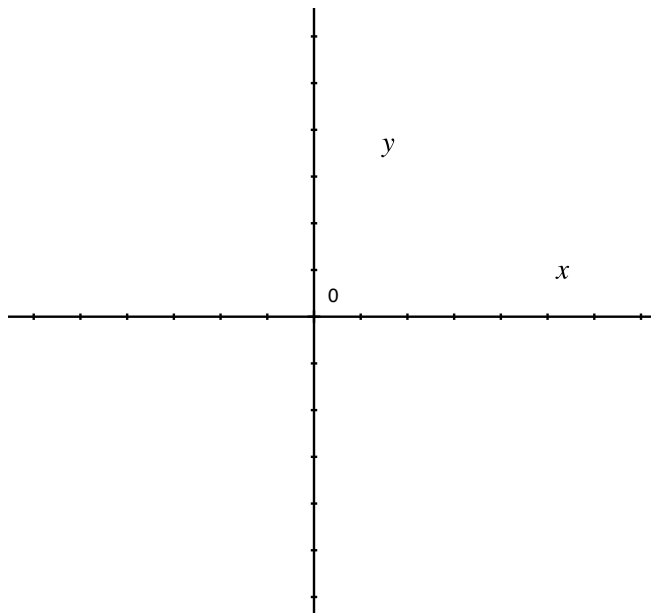


- (a) (3 pts.) How high is the balloon at the time 10 minutes? (Include units.)
- (b) (3 pts.) When does the balloon land?
- (c) (4 pts.) Approximate **all** the times that the balloon is 100 feet high.
- (d) (5 pts.) Find the **slope** of the balloon's **descent**.

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3. (4 pts.) Is  $(-1, 2)$  a solution to the following equation?  $-2 + 5y = 6(x + 3)$

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4. (9 pts.) Give the coordinates of the  $x$  and  $y$ -intercepts of  $\frac{1}{3}x = 2y - 2$ .

5. (12 pts.) Graph  $x - 4y = 8$  on the axes below.



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6. (13 pts.) Ann and Carl start driving towards each other at the same time along the same road from different places that are 60 miles apart. Ann is on a scooter and drives at a constant speed of 35 mph. Carl drives his car at a constant speed of 55 mph.

When will they get to wave to each other? (Define variables, use equations to solve, and write your answer in a complete sentence.)

7. (12 pts.) Three friends decide to buy and share a \$5000 scooter. They will split the cost, but since some will use the scooter more than others, it is not split evenly.

Ann will pay twice the amount that Betty will pay. Carl is going to pay \$600 more than Betty.

How much will each of them pay? (Define variables, use equations to solve, and write your answer in a complete sentence.)

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8. (11 pts.) Are the following lines parallel, perpendicular, or neither? (Show your calculations.)

Line 1: Goes through the points  $(-1, 1)$  and  $(4, -2)$

Line 2: See the graph to the right.

