

**Math 70**  
**Exam 2**  
**November 21st, 2008**

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

1. Your exam contains 5 questions and 4 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. If you need extra space, use the back of the exam and clearly indicate this.
5. You are allowed one  $3 \times 5$  notecard for handwritten notes (both sides).
6. Simplify answers as much as possible.
7. Put a box around your final answer where applicable.

Problem	Total Points	Score
1	11	
2	20	
3	42	
4	16	
5	11	
Total	100	

1. (11 pts.) You go on a trip to Europe and you see on an electronic sign that it is  $30^{\circ}\text{C}$  outside. Luckily, you remember that the conversion formula between Fahrenheit and Celsius is  $F = \frac{9}{5}C + 32$ .

What is the outdoor temperature in degrees Fahrenheit?

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2. (20 pts.) Simplify the following:

(a) (8 pts.)  $2y[3y + 2(y - 1)]$

(b) (5 pts.)  $x^8 \cdot x^3$

(c) (7 pts.)  $(-4ab^3)(9a^2b^5)$

3. (42 pts.) Solve the following equations. (Remember to check your answers.)

(a) (8 pts.)  $x + 3 = -12 + 8$

(b) (8 pts.)  $5y = 1.5$

(c) (8 pts.)  $3x + x = 6$

(d) (10 pts.)  $4(x - 2) = 2x + 2$

(e) (8 pts.)  $\frac{x}{6} + \frac{3}{2} = 1$

4. (16 pts.) You want to make a “high-energy” trail mix using chocolate and peanuts. You are going to put **3 times** more chocolate than peanuts.

If you want a **total** of 20 pounds of trail mix, how many pounds of each do you need to use?  
(Use equations to solve this problem and state your answer in a sentence.)

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5. (11 pts.) My pet tortoise Sam likes to wander in one direction.

If he travels at a constant speed of 1.4 feet per minute for 20 minutes, how far will he get? (Include units in your answer.)

**Extra Credit:** (3 pts.) Suppose you order a \$40 dinner (for you and a friend) and there is 10% sales tax. Your friend says that the 15% tip applies to the bill before you count the sales tax and you believe that the 15% tip applies to the bill after you count the sales tax.

What is the difference in the amount that you will pay if you tip based on the pre-tax or post-tax amount?