

Math 70
Final Exam
December 9th, 2010

Name: _____

1. Your exam contains 12 questions and 7 pages; Please make sure you have a complete exam.
2. The entire exam is worth 130 points. Point values vary and these are indicated on each problem. You have 1 hour and 50 minutes for this exam.
3. Make sure to **ALWAYS SHOW YOUR WORK**; you will not receive partial credit unless all work is shown. If in doubt, ask for clarification.
4. Simplify your answers as much as possible.
5. Put a box around your final answer where applicable.
6. If you need extra space, use the space in the back of the exam.
7. **Remember to check** to see if your answers make sense and check your negatives!

Problem	Total Points	Score
1	20	
2	7	
3	20	
4	6	
5	6	
6	10	
7	7	
8	18	
9	13	
10	5	
11	6	
12	12	
Total	130	

1. (20 pts.) Simplify the following as much as possible.

(a) (3 pts.) $\frac{3}{4} \cdot \frac{5}{6}$

(b) (5 pts.) $\frac{5}{6} + 1\frac{3}{8}$ (Note: That is the mixed number $1\frac{3}{8}$. It is not 1 multiplied by $\frac{3}{8}$.)

(c) (4 pts.) $\frac{\frac{3}{4}}{\frac{8}{9}}$

(d) (4 pts.) $-4.4 - 1.38$

(e) (4 pts.) $5 - 2(7 - 4)^2$

2. (7 pts.) Mount Everest is the tallest mountain in the world. It is 8.8 kilometers tall. Convert the elevation of Mount Everest into miles. (Use the approximation $1 \text{ km} = 0.6 \text{ miles}$.)

3. (20 pts.) Solve the following equations. (Remember that you can check your answers.)

(a) (6 pts.) $-7 + 10 = 5x + 18$

(b) (7 pts.) $5x + \frac{1}{2} = 2x + 1$

(c) (7 pts.) $2(y + 3.5) + y = 1$

4. (6 pts.) Suppose you want a brand new hybrid car, which costs \$23,000 before taxes.
If the sales tax is 8%, what will the **total** cost be for the car?

5. (6 pts.) Out of 80 questions on a test, Bob answered 70 questions correctly. What percentage of the test questions did Bob answer **incorrectly**?

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6. (10 pts.) Simplify the following as much as possible. Express your answers with positive exponents.

(a) (2 pts.) 2^{-3}

(b) (4 pts.) $(\frac{1}{5}x^3)^2$

(c) (4 pts.) $\frac{3x^2y}{12x^2y^6}$

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7. (7 pts.) Suppose you plan a bike ride that is 21.6 miles long. You are going to bike at a constant, leisurely pace of 9 miles per hour.

How much time will you spend on this ride? (Include units in your answer.)

8. (18 pts.) For the following two word problems, **list unknowns**, clearly **define a variable**, use an **equation** to solve, and state your **answer in a sentence**.

(a) (9 pts.) I have decided to make a giant rectangular chocolate bar* and I would like the length to be 4 feet more than 3 times the width.

If the **perimeter** of the chocolate bar is 48 feet, find the length and width of the bar.

(b) (9 pts.) Ann and Betty are going to rent an apartment downtown together and split the rent. Since Betty gets the parking space for the apartment, she will pay \$150 more than Ann each month. The total rent for the apartment is \$1100 each month.

How much should Ann and Betty each pay monthly?

*Note: I am not actually going to make this chocolate bar. Sorry if you were excited about it.

9. (13 pts.) Simplify the following as much as possible.

(a) (4 pts.) $(7x^2 - 2x) - (-x^2 + 5x - 8)$

(b) (4 pts.) $(x - 3)(4x + 2)$

(c) (5 pts.) $2x(x^2 + 3x - 8) + x^2$

10. (5 pts.) Solve $12x + 3y = 9$ for the variable y .

11. (a) (3 pts.) The average distance between Neptune and the sun is approximately 4.498×10^9 kilometers. Write this distance in decimal form.

#11 Continued \rightarrow

#11 Continued:

(b) (3 pts.) Write the number 0.0000682 in scientific notation.

12. (a) (12 pts.) Find the missing coordinate of each ordered-pair solution to the equation $x + \frac{1}{2}y = 1$.

i. (3 pts.) (? , 4)

iii. (3 pts.) (2 , ?)

ii. (2 pts.) (0 , ?)

(b) (4 pts.) Graph the linear equation $x + \frac{1}{2}y = 1$ on the given axes using **at least 3 points**. (Label the points you use.)

