

Math 70
Final Exam
December 9th, 2008

Name: _____

1. Your exam contains 11 questions and 6 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 2 hours 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 notesheet 8.5" \times 11" 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	19	
2	6	
3	9	
4	12	
5	8	
6	9	
7	3	
8	10	
9	8	
10	6	
11	10	
Total	100	

1. (19 pts.) Simplify the following.

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

(b) (4 pts.) $\frac{3}{4} + \frac{5}{6}$

(c) (4 pts.) $\frac{3}{4} \div \frac{5}{6}$

(d) (3 pts.) $-4.4 - 1.38$

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

2. (6 pts.) Suppose you drive your vehicle 157.2 miles on 6 gallons of gas.

What is your gas mileage? (i.e. How many miles are you getting per gallon?)

3. (9 pts.) **Giant Chocolate Bar** I have decided to make a giant chocolate bar.
The length is 4 feet more than 3 times the width.

If the **perimeter** of the chocolate bar is 40 feet, find the length and width of the bar.



Write your answer in a sentence.

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4. (12 pts.) Solve the following equations. Remember to check your answers.

(a) (6 pts.) $5x - 5.1 = 3x - 2.3$

(b) (6 pts.) $y + 2y + 7 = 1$

5. (8 pts.) Suppose you want a brand new hybrid car, which costs \$22,000 before taxes.
If the sales tax is 8%, what will the **total** bill be for the car?

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6. (9 pts.) Simplify the following as much as possible. Express your answers with positive exponents.

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

(b) (3 pts.) $(4x^3)^2$

(c) (3 pts.) $\frac{12y}{3y^5}$

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7. (3 pts.) The average distance between Neptune and the sun is approximately 4.498×10^9 kilometers.

What is that distance in decimal form?

8. (10 pts.) Simplify the following.

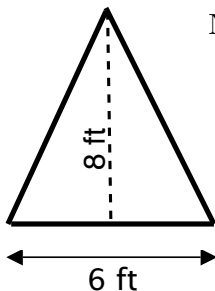
(a) (3 pts.) $(3x^2 - 2x) - (-x^2 + 5x)$

(b) (3 pts.) $(x + 3)(x - 5)$

(c) (4 pts.) $2x(x^2 + 3x - 8) + x^2$

9. (8 pts.) You buy fabric to make a triangular sail that will have an altitude of 8 feet and a base of 6 feet.

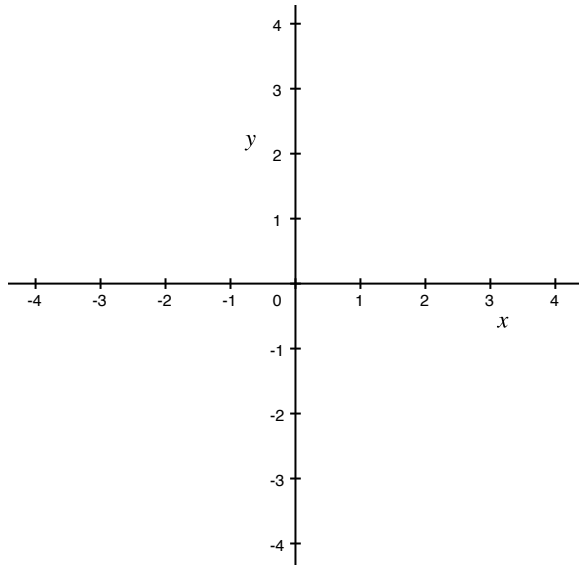
If the material costs \$2.50 per square foot, how much will it cost for all of the fabric?



Note: The area of a triangle is given by

$$A = \frac{1}{2}ab \quad \text{with altitude} = a \text{ and base} = b.$$

10. (6 pts.) Plot the following points on the xy -plane below.



(a) $(3, -1)$

(b) $(-2, 0)$

(c) $(0, \frac{3}{2})$

Make sure to label your points.

11. (10 pts.) Find the missing coordinate of each ordered-pair solution to the equation $4x + \frac{1}{2}y = 5$.

(a) (5 pts.) $(1, ?)$

(b) (5 pts.) $(?, 6)$