

Math 70
Final Exam
December 10th, 2009

Name: _____

1. Your exam contains 12 questions and 7 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. Put a box around your final answer where applicable.
5. Simplify answers as much as possible.
6. If you need extra space, use the back of the exam and clearly indicate this.
7. You are allowed one 3" \times 5" notecard for handwritten notes (both sides). Staple your notecard to the back of this exam when completed.

Problem	Total Points	Score
1	15	
2	4	
3	4	
4	4	
5	4	
6	16	
7	13	
8	10	
9	4	
10	10	
11	8	
12	8	
Total	100	

1. (15 pts.) Perform the indicated operations. Simplify as much as possible.

(a) (4 pts.) $\frac{1}{6} + \frac{2}{3} - \frac{8}{9}$

(b) (4 pts.) $\frac{2\frac{1}{6}}{\frac{3}{4}}$

(c) (3 pts.) $-5.1 + 6.83$

(d) (4 pts.) $3(-2) + 4(3 - 4)^2$

2. (4 pts.) Scientific Notation:

(a) (2pts.) Write 1.372×10^{-6} in decimal form.

(b) (2 pts.) Pluto is 5,910,000,000 kilometers from the sun (on average). Write this number in scientific notation.

3. (4 pts.) Out of 120 cars in a lot, 45 cars are blue. What percentage of cars are blue?

4. (4 pts.) A \$70 sweater is on sale for 40% off. Find the amount of the discount and the sale price. (Not including tax.)

5. (4 pts.) Currency Conversion: Supposing that the current exchange rate is 1 Euro = \$1.50, how many Euros can you get for \$60?

6. (16 pts.) Solve the following equations. (Remember that you can check your answers.)

(a) (3 pts.) $10 = 8.1 + x$

(b) (4 pts.) $\frac{2}{3}t = 10$

(c) (5 pts.) $3(x + 1) - 5 = 5x + 2$

(d) (4 pts.) $2y + \frac{1}{3} = \frac{11}{15}$

7. (13 pts.) Perform the indicated operations and simplify as much as possible.

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

(b) (3 pts.) $3y(y^4 - y + 2)$

(c) (4 pts.) $(6x^2 - 2x + 8) - (x^2 - 3x - 1)$

(d) (3 pts.) Evaluate $2w^3 - 5w - 9$ for $w = 2$.

8. (10 pts.) Simplify as much as possible. Write your answer with only positive exponents.

(a) (2 pts.) 8^{-2}

(c) (2 pts.) 5^0

(b) (3 pts.) $(-2x^2y)^3$

(d) (3 pts.) $\frac{15a^2b^2}{3a^2b^8}$

9. (4 pts.) Suppose you go on a 440 mile road trip that takes you 8 hours. What was your average speed?

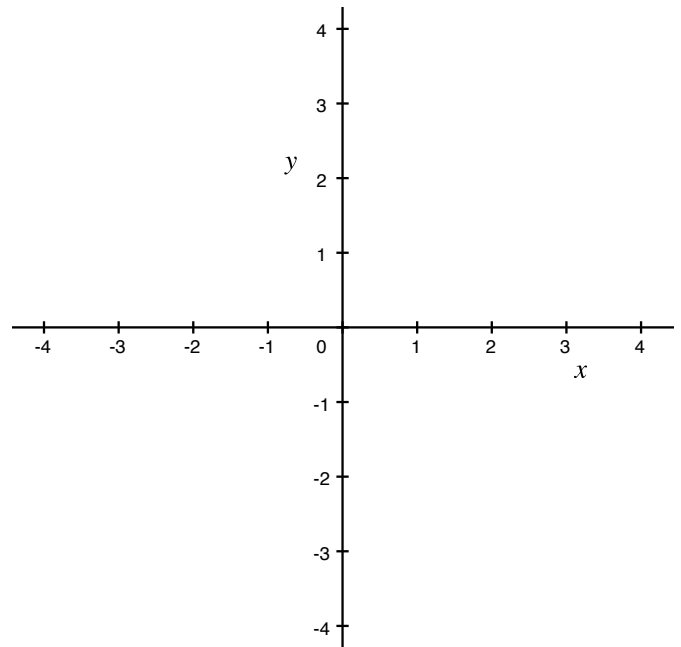
10. (10 pts.)

(a) (6 pts.) Find the missing coordinate of each ordered-pair solution to the equation $2x + y = 1$.

(2 , ?)

(? , 3)

(b) (4 pts.) Sketch a graph of the linear equation
 $2x + y = 1$
on the given axes using **at least 3 points**.
(Label the points you use.)



11. (8 pts.) A 40-foot long pipe is cut into two pieces. The short piece is 9 feet shorter than the long piece.

Find the length of both pieces. (Use **equations** to solve and write your answer in a complete sentence.)

12. (8 pts.) A gardener has 120 feet of fencing and he wants to build a rectangular garden. He wants the length to be three times the width.

In order to have a perimeter of 120 feet, what should the length and the width be?
(Use **equations** to solve and write your answer in a complete sentence.)