

Math 130
Final Exam
Fall 2007
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Question	Points
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
Total	

You have 50 minutes for the exam. Calculators, notes or other aids are not allowed. (The use of your brain is encouraged.) If a question is unclear to you, please ask about it. Be sure to show all your work. (I mean it!!)

Name: _____

1. A used book store sells books for 50% of the price listed on the book. You have a coupon that allows you to get 10% off the price of one book. When you go to buy the book you want, the clerk takes 10% off the price listed on the book, and then charges you 50% of that.

a.) Should you ask the clerk to apply those two discounts in the other order? Why or why not?

b.) Is there a way to change the percentages in the problem so that your answer to part a would be different? Why or why not?

2. Calculate $13.7 \div 0.08$ using long division, writing out the computation completely.

3. Calculate 2.31×1.2 in two ways:

a.) First, using the standard algorithm for multiplication.

b.) Second, write out a more in-depth computation that shows why the algorithm gives you the correct answer.

4. Three numbers have each been written in two different ways below. Without dividing out the fractions, match up the pairs of numbers that are equal:

$$\frac{10780}{7623}$$

1.414

$$\sqrt{2}$$

1.4 $\overline{14}$

$$\frac{88375}{62500}$$

1.414...

Explain why you matched up the numbers the way you did. (Saying "I matched up these two because they were the only ones left" is not an acceptable answer.)

5. a.) For any positive number x , two of the following are the same. Which two? Explain.

$$x \qquad -x \qquad |x|$$

b.) For any negative number x , two of the following are the same. Which two? Explain.

$$x \qquad -x \qquad |x|$$

6. Convert the following numbers into fractions:

a. $0.\overline{4}$

b. $2.\overline{73}$

c. $1.3\overline{221}$

7. Give one explanation why $0.\overline{9} = 1$.

8. Write the following fractions as numbers with decimal expansions:

a. $\frac{1}{8}$

b. $\frac{4}{7}$

c. $\frac{92}{111}$

9. Mike can wrap 1 present in 8 minutes. Kim can wrap 1 present in 5 minutes. If they have 26 presents to wrap, how long will it take the two of them working together?

10. In some student organization, $\frac{3}{7}$ of the members are graduate students and $\frac{4}{7}$ of the students are undergraduate students.

a.) The number of undergraduates in the organization is what percentage more than the number of graduate students?

b.) The number of graduate students in the organization is what percentage less than the number of undergraduate students?

11. Simplify the following expressions:

a. $\frac{2}{\frac{1}{x} + \frac{1}{y}}$

b. $-2 + \frac{3}{-4} + (-2) \cdot (2 - (-3))$

12. a. Consider the following question: $7 \div 4 = \underline{\quad}$. At various points in this class, we would have filled in this blank in three slightly different ways. What are those different ways? Why are these answers all the same?

b. There are two different operations that could be considered the opposite of "adding 5". What are they?

13. Ed made some green paint by mixing together $1\frac{1}{4}$ gallons of blue paint and $\frac{2}{3}$ gallons of yellow paint. Later, he needs to mix some more of the same shade of paint, so he should use the same proportion of blue and yellow paint. If he has $\frac{3}{4}$ of a gallon of yellow paint left, how much blue paint should he add to it?