

University of South Carolina
Math 221: Math for Elementary Educators
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Section 001
Spring 2010

Test 3

1. Adding Decimals
 - a. Write 4.3 and 2.94 in expanded form.
 - b. Use the expanded forms in part a to find $4.3 + 2.94$. Write your final answer as a decimal.
 - c. Why must you line up the decimal point to use the standard algorithm?

2. Multiplying Decimals
 - a. Convert 4.3 and 0.32 to fractions (*not* mixed numbers). Do not reduce.
 - b. Use the fractions in part a to find $4.3 \cdot 0.32$. Write your final answer as a decimal.
 - c. According to the standard algorithm, how many digits should be behind the decimal in your answer? Why must this be the case? (Simply restating the rule will not get full credit. I want to know *why* the rule is the way it is.)

3. Percents
 - a. You baked 350 cookies for a bake sale and sold $\frac{4}{5}$ of them. How many cookies did you sell?
 - b. You contribute \$56 toward the cost of dinner, which happens to be 35% of the 'total bill. What is the total cost of the dinner?

4. You survey some of your friends about terrible music and find that:

- 13 hate Nickelback
- 9 hate John Mayer
- 4 hate both Nickelback and John Mayer

Let N and J be the set of surveyed people that hate Nickelback and John Mayer, respectively.

- a. What do people in the set $N \cup J$ think about Nickelback and John Mayer?
- b. What do people in the set $J - N$ think about Nickelback and John Mayer?
- c. Draw a Venn Diagram to represent the results of the survey.

5. Each of the following statements is false. For each one, state the negation and prove that it is true.

- a. Some dogs are elephants.
- b. If the sky is blue, then Earth is flat.

6. The following statement is true.

If $x \cdot y$ is odd, then x is odd and y is odd.

- a. State the contrapositive of the statement above. (Hint: Try to write out just “not(x is odd and y is odd)” first.)
- b. Prove the original statement by proving the contrapositive.