

**Math 201 Exam 2 Fall 2009 NAME:**

**No Calculators! Show all your work!**

1. (20 pts) (a) Express the fraction  $\frac{5}{14}$  in decimal form. Show all your work.

*Solution:*  $.3\overline{571428}$

- (b) Write  $2.\overline{45}$  as fractions. Show all your work.

*Solution:*  $\frac{243}{99}$

2. (20 pts) Perform the operation and express the answer in simplest form:

(a)  $\frac{11}{35} - \frac{13}{55} =$  *Solution:*  $\frac{6}{77}$  (b)  $\frac{55}{18} \div \frac{44}{27} =$  *Solution:*  $\frac{15}{8}$

3. (10 pts) (a) Find a fraction between  $\frac{15}{23}$  and  $\frac{16}{23}$ .

*Solution:*  $\frac{151}{230}$  or  $\frac{31}{46}$

- (b) Find a decimal between 1.234567 and  $1.234\overline{567}$ . *Solution:* 1.2345671

4. (10 pts) Write a word problem for the division  $8\frac{1}{4} \div 1\frac{3}{8}$  and solve it. Please answer in a complete English sentence.

*Solution:* A cake recipe calls for  $1\frac{3}{8}$  cups of sugar. How many cakes can you bake with  $8\frac{1}{4}$  cups of sugar. Answer: 6

5. (15 pts) Write out an explanation, with sketches, to answer the following: Three-fourths of the class were girls. Two-thirds of the girls have dark hair. What fraction of the class is female and dark haired? Please answer in a complete English sentence.

*Solution:*  $\frac{1}{2}$

6. (15 pts) In Nerdville three out of every five adult residents have a college degree. The ratio of residents with a college degree in engineering to those with college degrees in other subjects is two to five.

(a) What is the ratio of adult residents of Nerdsville with college degree to those without college degree? *Solution:* 3 : 2

(b) What fraction of the adult population with college degree majored in engineering? *Solution:*  $\frac{2}{7}$

(c) What fraction of the adult population of Nerdsville has a college degree in engineering? *Solution:*  $\frac{6}{35}$

7. (10 pts) Peter, Paul and Mary shared a large Pizza at the Mellow Fungus. Peter ate twice as much as Paul and Paul ate three fourth of what Mary ate. The total bill came to \$19.50. How much should each of them pay to make it fair? Please answer in a complete English sentence. *Solution:* \$9.00, \$4.50, \$6.00

8. (10 pts) Use drawings of chips in two colors to explain  $2 -^{-} 5 = 7$