**MA 137   A COLLECTION OF REVIEW PROBLEMS**
Note: This is NOT a practice exam. It is a collection of problems to help you review some of the material for the exam and to practice some kinds of problems. This collection is not necessarily exhaustive; you should expect some problems on the exam to look different from these problems.

It's a good idea to take your picture ID to all exams.

In addition to studying the problems on old quizzes, homework assignments, review problems from earlier in the semester, and exams, you might want to give the following problems a try.

Consider this Venn diagram:
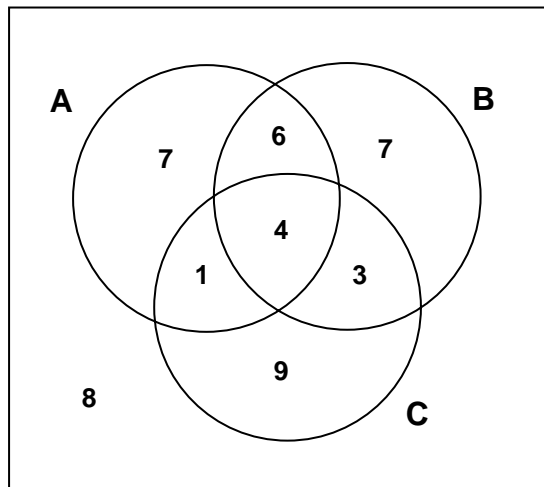
1. Which set, *A, B,* or *C*, contains the most elements?
2. How many elements are in $A \cup C$?
3. How many elements are in $B \cup C'$?
4. How many elements are in $A \cup (B' \cap C')$?

5. Robert bought a used book. Rita bought the same book new for $54. Rita was upset to learn that she paid $1\frac{1}{2}$ times what Robert paid. How much did Robert pay for his book?

6. Arlo had $6\frac{3}{4}$ lbs. of flour. He had a pastry recipe that called for $1\frac{1}{2}$ lbs. of flour. How many batches of pastry could Arlo make with his flour? How much flour (if any) is left over?

7. Sketch a collection of base-three pieces with 63 total units. Write the base-three numeral for the collection.

8. Use prime factorizations to find the GCD and LCM of 108 and 4536.

9. True or False: (Answer these without using a calculator!) Justify your responses.
    a. 6 is a factor of 12.
    b.12 divides 60
    c. 60 is a multiple of 6.
    d. 6 is a factor of $2^2 \cdot 3 \cdot 7$
    e. $2^2 \cdot 3 \cdot 7$ is a multiple of 10
    f. 50 | 25

10. I spent $\dfrac{2}{3}$ of my savings on new appliances. I had $1275 left. How much money did I have in savings before I bought the appliances?

11. Lisa tiled $\dfrac{1}{2}$ of a room in 45 minutes. At this rate, how many full rooms of the same size can she tile in 6 hours?

12. The value of Patrick's stamp collection increased by a third. The collection is now worth $450. What was it worth before the increase?

13. A class consists of $\dfrac{2}{5}$ freshmen, $\dfrac{1}{4}$ sophomores, and $\dfrac{1}{10}$ juniors. The rest of the class are seniors.
    a. What fraction of the class are seniors?
    b. The class has 240 sophomores. How many students are in each of the other classes?

14. Use a sketch to show how to compute $243_{five} + 1033_{five}$.

15. Use a sketch of dividing a fraction bar to show the answer to $\dfrac{3}{5} \times \dfrac{5}{7}$.

16. A local park set aside $\dfrac{2}{5}$ of its total area as a play area. Design specifications required $\dfrac{1}{6}$ of the play area be devoted to a sand area. What fraction of the parks is devoted to sand area? Explain what operations you use and why you use them.

17. A plot of land has area $12\frac{2}{3}$ acres. A developer intends to divide into home sites. A total of $3\frac{1}{2}$ acres are lost to such things as roads and common areas. The developer wants each home site to be $\dfrac{3}{5}$ of an acre. How many home sites can be fit into the development? Explain what operations you use and why you use them.