Homework 6 - Math 105

Name: _____

Do not use a calculator unless it says **(Calc)** *next to the problem.*

1. **(Calc)** Abe is running a marathon (26.2 miles). If he runs at 9 miles per hour for the first 21 miles, how much faster will he need to run the last 5.2 miles if he wants to finish in 3 hours?

2. **(Calc)** An athlete's target heart rate is 80% of the theoretical maximum heart rate. The maximum heart rate, in beats per minute, is found by subtracting the athlete's age, in years, from 220. What is the target heart rate as a function of an athlete's age? Draw and label a graph of the function.

3. All of the students in a class took an exam. Each student either passed or failed. 85% of the students passed and 3 students failed. How many students are in the class?

4. At one point in the season, a college basketball team had won 60% of their games. After that point, they won 8 games and lost 2, to finish the season having won 65% of their games. How many games did the team play that season?

5. The faucet of a bath tub can fill the tub in 15 minutes. The drain, when opened, can empty the full tub in 20 minutes. Suppose the tub is empy and the faucet and the drain are both opened at the same time. How long will it take to fill the tub?

6. Alice can shovel her driveway in 1 hour. Bob can do the same job in 30 minutes. If they work together, how long will it take them to shovel the driveway?