MIDTERM REVIEW
MATH 111

Review questions for the in-class portion:

1. Approximately how many minutes are in a month?

2. It costs $2.50 to ride the New York City subway. A seven-day unlimited pass costs $29. How many rides in a seven day period should you take before it's a better deal to buy the pass?

3. Suppose sales tax is 5% and a $117 item is discounted 40%. What is the final price (with tax)?

4. In 2001, a gallon of milk cost $2.85; today it costs $3.32. Using the inflation rate of 37.12%, calculate the relative change (as a percentage) of the cost of milk.

5. Bob has taken 55 credits and earned a 1.75 GPA. In order to avoid academic probation, he must have a 2.0 cumulative GPA by the end of this semester. If he is taking 12 credit hours this semester, what does his semester GPA need to be to ensure a 2.0 cumulative GPA? Can he avoid academic probation?

6. At Brandon's strawberry patch, admission costs $5 and strawberries are $.35 per pound.

   a) If Justin wants 5 pounds of strawberries, how much will it cost him?

   b) If Justin spent $20, how many pounds of strawberries did Justin purchase?

Review questions for the take-home portion:

1. What is the mass in kilograms of the entire student body at Winthrop University? How many elephants is this equivalent to?

2. Goldman settles with S.E.C for $550 million. That's what *The New York Times* reported on July 15, 2010. How much is that per person in the United States?

3. In *The New York Times* on May 31, 2011 you could read that

Every year America spends close to $66 billion to keep people behind bars. But almost 500,000 of the 2.3 million prisoners arent convicts; rather, they are accused individuals awaiting trial.

(a) What percentage of the population is behind bars?

(b) How does that percentage compare to the percentages in other countries?

4. In 1941 A. J. Liebling wrote in *The New Yorker* that Mr. Ormont, the manager of the Jollity Building, was paid $50 a week plus a commission of two percent of the rents. That commission earned him an extra two thousand dollars a year.

(a) What was the average weekly rent on which Mr. Ormonts commission was based?

(b) What would Mr. Ormonts annual income be today, adjusted for inflation?

(c) Sometimes we find quantitative reasoning questions in our casual reading (not the daily paper). This one comes from a reprint of The Jollity Building in *Just Enough Liebling*, a collection of the authors New Yorker pieces, where it was dated 1938. Redo (b) with this date. How much of a difference does the three years make?

5. In class, we saw that grades and GPA are often computed as a weighted average. Another popular use of weighted averages is in computing batting averages. In 1941 Ted Williamss batting average was .406. He had 185 hits in 456 official at bats. According to Wikipedia,

Before the game on September 28, Williams was batting .39955, which would have been rounded up to a .400 average. Williams, who had the chance to sit out the final, decided to play a doubleheader against the Philadelphia Athletics. Williams explained that he didnt really deserve the .400 average if he did sit out. Williams went 6-for-8 on the day, finishing the baseball season at .406.

(a) Check the computation of Williamss final batting average.

(b) Check the computation of Williamss batting average before the final day of the season.

(c) Williams got six hits in eight at bats on that last day. Would he have batted .400 for the season if hed gotten only five? What if only four? Three?

6. Kuipers Family Farm, in Maple Park, IL, charged $9 for admission to the apple orchard for the 2013 apple season. This includes a $\frac{1}{4}$ peck bag of apples and a hayride to the orchard. Visitors can pick additional peck bags of apples for $15 each.

  (a) If you pick that additional peck of apples, how much do you pay?

  (b) If you pick two additional pecks of apples, how much do you pay?

  (c) If you just enjoy the free cider, your $\frac{1}{4}$ peck of apples and the sunshine, what do you pay?

  (d) Write a linear function that shows how the total cost of the farm visit depends on the how many pecks of apples you pick.