**MarthQ114** **Name**

**"Guess-timation"**

A Math Q114 student in Spring 2004 was told that someone put their son through four years of college at Harvard University by collecting soda cans. With his newly developed "guess-timation" skills, he debunked this urban myth by making the following assumptions and calculations:

- Cost of a four-year degree at Harvard University = $160,000 ($40,000 per year)
- Refund per can = 5¢ = $0.05
- Number of cans you could collect in an hour = 180 (this means 3 cans per minute on average)
- Number of collecting hours in a day = 8 (remember it takes time to return the cans!)
- Number of collecting days in a year = 250 (you need time off to recuperate)

He determined that the total amount that could be earned over 4 years is:

$$\frac{4\text{ years}}{1}\times\frac{250\text{ days}}{1\text{ year}}\times\frac{8\text{ hours}}{1\text{ day}}\times\frac{180\text{ cans}}{1\text{ hour}}\times\frac{\$0.05}{1\text{ can}}=\$72{,}000$$

**Exercise**

1. Are these assumptions reasonable? Using these assumptions, how many years of collecting would it take to earn $160,000?

**How to Make "Guess-timates"**

This example shows how to make "guess-timates" of certain values. Presented with a situation, you try to make certain reasonable assumptions based on the available information. Note that each person may make different assumptions and arrive at different answers. However, as long as the assumptions are reasonable the results should be reasonably close.

**Exercise**

2. Perform each "guess-timation" calculation and clearly state the assumptions that you are making.
   a) Approximately how many marriages are there every day in the U.S? Note that there are approximately 2.2 million marriages in the U.S. each year. Discuss the accuracy of this value.

b) Could a person walk across the United States (New York to Los Angeles) in a year? Using your assumptions, how long would it actually take? Is this a reasonable number?

c) How much money can you expect to earn in your lifetime? Compare this figure to the salaries of some professional athletes.

d) In 2001, there were 6,323,000 motor vehicle crashes. Approximately how many crashes were there every minute? Is this a reasonable number?