CMSC21 Lab Exercise 1

1. Write a function that calculates the cost per square inch of a circular pizza, given its diameter and price. The formula for area is $A = \pi r^2$

2. You want to order pizza for all of your friends, but hate to see any pizza slices wasted. If pizzas had 8 slices, and each of your *n* friends can eat a maximum of *s* slices, how many full pizzas should you order to ensure there is no pizza left over? Write a function to determine this.

3. The Gregorian epact is the number of days between January 1st and the previous new moon. This value is used to figure out the date of Easter (see http://www.dateofeaster.com for more info). The epact is calculated by these formulas (using int arithmetic):

   $C = year / 100$

   $epact = (8 + (C / 4) - C + ((8C + 13) / 25) + 11(year\%19))\%30$

   Write a function that accepts a 4-digit year and then returns the value of the epact.

4. The Kapehan coffee shop sells coffee beans at P850 per kilo plus the cost of shipping. Each order ships for P185 per kilo + P250 fixed cost per shipment for overhead. Write a function that calculates the cost of an order.

5. Write a function to determine the length of a ladder required to reach a given height when leaned against a house. The height and angle of the ladder are given as inputs. To compute length, use

$$length = \frac{height}{\sin angle}$$

Note: the angle must be in radians. Accept as input parameters an angle in degrees and use this formula to convert:

$$radians = \frac{\pi}{180}\ degrees$$