Determine if the following are true or false. If the statement is false, determine how to change it to make it true.

1. If it is a rectangle, then it is a square.
2. If the diagonals of a figure are equal, then it is a square.
3. If the base of a 3-dimensional figure is a circle, then it is a cylinder.

If trapezoid ABCD is positioned on the coordinate plane such that A is at (0,0), B is at (5,0), C is at (4,5) and D is at (1,5), what would the new coordinates be if the figure is reflected over the y-axis?

Using the fact that the sum of the angles of a triangle is 180°, find the sum of the angles in a regular pentagon.

When you double the height of a cylinder, how does the volume change? When you double the radius of base of a cylinder, how does the volume change?

Three red square tiles, 4 blue tiles, 6 green tiles, and 2 yellow tiles were placed in an opaque bag. If a student pulled one tile out of the bag five different times and replaced it each time, what is the sample space for his draw?

All four sixth grade classes polled the all of the students in Grade 6 and asked, "What time do you usually go to bed?" Each of the four sixth grade classes made a graph of the data. What kind of graph do you believe would show the data most effectively and why?

Using the data from a class of Grade 8 students, graph the number of times each student can say the word "yes" in 20 seconds, compared with the number of times a student can say the word "no" in 20 seconds.

Using the table below, determine the list of best fit for life expectancy.

Year of birth	1900	1910	1920	1930	1940	1950	1960	1970	1980	1990
Life expectancy	44.3	47	51.1	56.7	59.9	71.2	72.7	74	76	80

Find the distances from earth to each planet in kilometers and write the distances in scientific notation.

Determine which answer is more reasonable:
The width of the school playground is (.2 kilometers or .2 centimeters).
The national debt is over (3×10^{9} dollars or 3×10^{-9} dollars).

Susan bought a large pizza from Pizza Pizazz and it was cut into 12 pieces. Sammy bought a large pizza as well, but he asked for his pizza to be cut into 8 pieces. Both Susan and Sammy ate three pieces of their pizza. Who ate more of the large pizza? Explain your answer.

Determine an estimate of 24.3 + 15.098 + 0.712, next find the exact answer, and lastly, determine how to add the problem by using short-cuts.

A farm has a vertical cylindrical oil tank that has an inside diameter of 2.5 feet. The depth of the oil tank is 2 feet. If I cubic foot of space holds 7.48 gallons, about how many gallons of oil are in the tank?

Name the customary and metric units you could use to measure the following items. For example, for a microwave you could measure the length, width, or height in inches or centimeters; you could measure the weight or mass in pounds or kilograms; and you could measure the surface area in square inches or square centimeters.

	Customary Unit	Metric Unit
A soda can		
A SUV		
A trip from Charlotte to Raleigh		
The water used in your school each day		
The area of North Carolina		

The area of the floor of a rectangular room is 315 square feet. The area of one wall is 168 square feet and the area of the other wall is 120 square feet. The floor and ceiling are parallel. What is the volume of the room?

A company manufactures large boxes of one size. If the company decides to make a new box twice the length, width, and height of the old box, how will the volume of the new box compare with the volume of the old box?

The Byte Family is planning to subscribe to an Internet service. They have three payment plans from which to choose, and have asked for your help in choosing which plan to purchase.

	Monthly Rate	Hours of Access	Additional Hours
Plan A	$28.00	30 hours	$2.00
Plan B	$20.00	20 hours	$2.50
Plan C	$48.00	Unlimited Use	$0.00

Evaluate each plan and write a letter to the Byte family.
Provide specific costs in tables or graphs that support your recommendation and the advantages and disadvantages of each plan.

A tall thin candle is 50 centimeters tall. It loses 3 centimeters in height for each hour it burns. You can use the following formula to compute the height of the candle after it burns a given amount of hours.

$$h = 40 - 3x$$

How tall is the candle after 5 hours? 6.5 hours?

A short thick candle is 12 centimeters tall. It loses a centimeter in height for each hour burned. Create a formula to determine the height of the short thick candle after it burns a given number of hours.

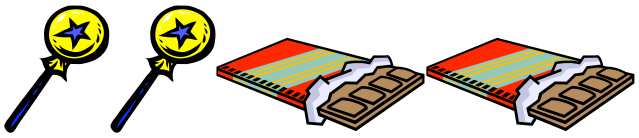
Which of the two candles will last longer? Show your work.

Given the area of a rectangle is 24 square inches. Create a table of values for the possible lengths and widths of the given rectangle. Use the formula $A = lw$

Given that the length is 8 inches, what is the width?

You are given the costs to purchase different amounts of candy.

Costs $4.50



Costs $5.00

What is the price of one lollipop?
What is the price of one candy bar?