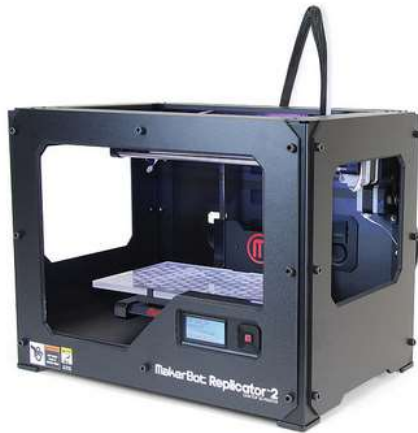
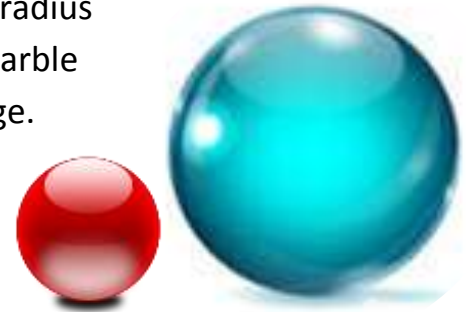


# Problems of the Month

March 2018

## General Problem:

A red marble has a radius of 5 inches. A blue marble has a radius of 10 inches. How much larger is the volume of the blue marble over that of the red marble? Give your answer a percentage.



## Calculus Problem:

A 3D printer is printing a solid half-sphere. If the printer prints at 0.5 cubic centimeters per minute, how large is the half-sphere when the radius is growing at 1cm per hour.

## Challenge Problem:

Consider the sum below where each letter in the equation represents a numerical digit, different letters representing different digits. What is the largest number that RESUME can represent and still have the equation be true? (Note: there are 10 different letters in this sum, so all of the digits 0-9 will be used in the solution)

$$\begin{array}{r} \text{M A J O R} \\ + \text{M I N O R} \\ = \text{R E S U M E} \end{array}$$