

# Problems of the Month

## October 2018

### General Problem:

Suppose a new app starts with just one person. That one person shares it with three people that try it. Each of those people share it with three people. After one more iteration, how many people have downloaded the app?



### Calculus Problem:

Find the integral below where  $E$  is the region bounded by the three axes and the plane given by  $3x + 2y + z = 6$ .

$$\iiint_E x dV$$

### Challenge Problem:

Friday the 13<sup>th</sup> looms large in the public imagination. Prove that every year has at least one! Also, what is the maximum number of Fridays the 13<sup>th</sup> a given year can have?

