

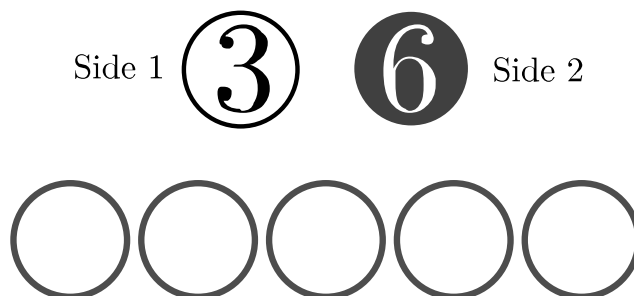


## Problem of the Week

### Problem C

#### To Create Numbers You Will Flip Over

A student has five identical disks. One side of each disk is white with a black number 3 stamped on it, and the other side of each disk is black with a white number 6 stamped on it.



Each of the five disks is placed on a different empty circle creating a five-digit number. How many different five-digit numbers can be formed such that the five-digit number is divisible by 9?

#### Did You Know?

If the sum of the digits of a number is divisible by 9, then the number is divisible by 9. If the sum of the digits of a number is not divisible by 9, then the number is not divisible by 9.

For example, the five-digit number 10 278 is divisible by 9 since the sum of the digits is  $1 + 0 + 2 + 7 + 8 = 18$ , which is divisible by 9. However, since the sum of the digits of the number 12 345 is 15 and 15 is not divisible by 9, then the number 12 345 is not divisible by 9.

