

A PIN for Mr. Mitchell

Adapted from *Navigating through Problem Solving and Reasoning in Grade 5*, NCTM

Mr. Mitchell has just installed a new security system at his house. He must create a secret six-digit personal identification number, or PIN, as his password for the system. He decides to use the six digits in his date of birth: 05-24-76. It is very important to Mr. Mitchell that no one else discover his PIN, so he decides to rearrange the digits in a six-digit number that no one is likely to guess.

After much thought, Mr. Mitchell decides to rearrange the numerals so that, from the left—

- the first digit is the largest of all the digits;
- the number formed by the first two digits is divisible by 2;
- the number formed by the first three digits is divisible by 3;
- the number formed by the first four digits is divisible by 4;
- the number formed by the first five digits is divisible by 5; and
- the entire six-digit number is divisible by 6.

Mr. Mitchell needs your help in creating a six-digit number that meets all of these conditions. By using the six digits in Mr. Mitchell's date of birth, can you create a PIN for him? Create at least two different PIN's for Mr. Mitchell that meet his conditions.

Extension:

On the back of this page, use your birthdate and develop a PIN that meets conditions that you determine on your own. (Do not use the same conditions as Mr. Mitchell.) See if your tablemates can make a PIN for you that meets your conditions.

Birthdate: _____

Conditions: