Try these problems before watching the lesson.

1. Using each of the digits 1, 2, 5, and 7 once, what is the largest four-digit number you can create which is divisible by 4?

2. What is the value of the digit $K$ that will make the number $481,5K6$ divisible by 2, 3, 4 and 9?

3. There are 24 four-digit positive integers that can be formed using each of the digits 2, 3, 7, 9 exactly once. How many of these 24 integers are prime?

4. Find a positive integer that is divisible by 18 and whose cube root is a number between 8 and 8.1.

First Problem: What four-digit number has tens digit 2 and units digit 8, is a multiple of 16, and when its digits are reversed the result is also a multiple of 16?

Second Problem: The product of three consecutive integers is 157,410. What is their sum?
5. Three teenagers have integer ages $x, y,$ and $z,$ in years. If the product of their ages is $4,590$ and they each have a different age, what is the sum of the three ages, in years?

6. A four-digit integer $m$ and the four-digit integer obtained by reversing the order of the digits of $m$ are both divisible by 45. If $m$ is divisible by 7, what is the greatest possible value of $m$?

7. What is the smallest positive five-digit integer, with all different digits, that is divisible by each of its non-zero digits? Note that one of the digits of the original integer may be a zero.

8. What is the smallest four-digit whole number divisible by 9 which has two even and two odd digits?

Wow! Share Your Thoughts

Have some thoughts about the video? Want to discuss the problems on the Activity Sheet? Visit the MATHCOUNTS Facebook page or the Art of Problem Solving Online Community (www.artofproblemsolving.com).