Divisibility Challenges

1. What is the smallest positive integer that is divisible by 2, 3, 4, 5, 6, 8, 9, and 10? (There is a good way to do this without guess-and-check).

2. What is the smallest 4-digit number that is divisible by 2, 3, 4, 5, 6, 8, 9, and 10?

3. Using only 1s and 2s, what is the smallest integer you can create which is divisible by both 3 and 8?

4. What is the smallest 5-digit integer divisible by both 8 and 9?

5. What digit could be used to fill in the blank and make the following number divisible by both 3 and 8? 45, 2_8

6. What is the smallest three-digit prime?

7. How many multiples of 3 less than 1,000 use only the digits 2 and/or 4?

8. 360 is divisible by both 8 and 9. How many integers less than 360 are also divisible by both 8 and 9? (Hint: First find the smallest integer that is divisible by both 8 and 9.)

9. There are two ways that the digits 1, 2, 3, and 4 be arranged to create a four-digit multiple of 8. Find them both.

10. Consecutive integers are placed in order to form a three-digit integer. The integer will ALWAYS be divisible by what prime number?