Divisibility Rules

Answer Key

1. Answer: B

   Explanation: 8912 is not divisible by 3 since the sum of its digits is not divisible by 3. The sum of digits of 8912 is 8 + 9 + 1 + 2 = 20. If you divide 20 by 3, the answer is 6 but it has a remainder of 2. Thus, 8912 is not divisible by 3.

2. Answer: A

   Explanation: A number is divisible by 4 if and only if its last two digits are divisible by 4. The last two digits of 92Q0 are Q0. If Q = 2, then the last digit of the number will be 20 which is divisible by 4 (20 ÷ 4 = 5, no remainder). Hence, the value of Q must be 2.

3. Answer: C

   Explanation: There are two conditions that must be met so that a number can be divided by 6 without a remainder: (1) the number must be even and (2) the number must be divisible by 3. Hence, if a given number is not divisible by 6, it means that at least one of the two conditions is not met. Since it was stated in the problem that the number is even, it follows that the number is not divisible by 3 which makes it not divisible by 6.

4. Answer: C

   Explanation: A number is divisible by 9 if and only if the sum of its digits is divisible by 9. The digits of 105 480 when added together gives 18: 1 + 0 + 5 + 4 + 8 + 0 = 18 . 18 is divisible by 9. Thus, 105 480 is divisible by 9

5. Answer: D

   Explanation: A number is divisible by 2 if and only if the last digit of that number is an even number. Thus, for 432 31A to be divisible by 2, A must be an even number. Now, how many numbers from 1 to 100 can be a possible value of A? Again, A must be an even number. Note that half of numbers from 1 to 100 are even numbers. Therefore, 100 ÷ 2 = 50. Hence, there are 50 numbers from 1 to 100 that can be a possible value for A.

To God be the glory!