Quick Review

➤ A number is divisible by 3 if the sum of its digits is divisible by 3. For example,
1035 is divisible by 3 because $1 + 0 + 3 + 5 = 9$, and 9 is divisible by 3.
1036 is *not* divisible by 3 because $1 + 0 + 3 + 6 = 10$, and 10 is *not* divisible by 3.

➤ A number is divisible by 6 if the number is divisible by 2 and by 3. For example,
1038 is divisible by 2 because the number is even.
1038 is divisible by 3 because $1 + 0 + 3 + 8 = 12$, which is divisible by 3.
So, 1038 is divisible by 6.

➤ A number is divisible by 9 if the sum of its digits is divisible by 9. For example,
5418 is divisible by 9 because $5 + 4 + 1 + 8 = 18$, and 18 is divisible by 9.
5428 is *not* divisible by 9 because $5 + 4 + 2 + 8 = 19$, and 19 is *not* divisible by 9.

➤ No number is divisible by 0.

➤ You can use a Carroll diagram to show numbers that are divisible by two numbers.
This Carroll diagram shows divisibility by 6 and by 9.

	Divisible by 6	Not divisible by 6
Divisible by 9	18, 36, 126, 162	27, 45, 963, 711
Not divisible by 9	6, 12, 204, 402	10, 29, 325, 802

➤ You can use divisibility rules to help list the factors of a number.
To list the factors of 156:
Try each rule in turn.
Divide by 2: $156 \div 2 = 78$
Divide by 3: $156 \div 3 = 52$
Divide by 4: $156 \div 4 = 39$
156 is not divisible by 5.
Divide by 6: $156 \div 6 = 26$
156 is not divisible by 7, by 8, by 9, or by 10.
Use a calculator to check for divisibility by 11 and 12.
156 is not divisible by 11.
Divide by 12: $156 \div 12 = 13$
Since the factors 12 and 13 are close in value, you have found all the factors.
In order, the factors of 156 are: 1, 2, 3, 4, 6, 12, 13, 26, 39, 52, 78, 156

1. Match the number with the correct divisibility statement.
   Draw more than one line if it is needed.

   54   Divisible by 10.

   56   Divisible by 3.

   50   Divisible by 9.

   92   Divisible by 8.

   75   Divisible by 5.

   93   Divisible by 2.

   30   Divisible by 6.

2. Cross out the numbers that are *not* divisible by 2.

   12   79   98   134   227   2469

   How do you know the numbers are not divisible by 2?

   _____

3. Circle the numbers that are divisible by 9.

   91   331   333   153   99   12 321

   How do you know you are correct?

   _____

   _____

4. Write four numbers that are divisible by 6: _____
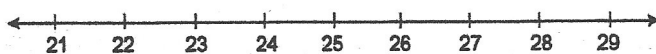   How did you choose those numbers? _____

   _____

5. Solve each riddle.

   a) I am divisible by 2 and by 3.
      I am between 21 and 29.
      Which number am I? _____

   b) I am divisible by 5 and by 10.   c) I am divisible by 2 and by 9.
      I am between 56 and 64.   I am between 424 and 449.
      Which number am I? _____   Which number am I? _____

6. Which numbers below are divisible by 3? By 6? By 9?
How do you know?

a) 124 _____

b) 215 _____

c) 330 _____

_____

d) 450 _____

_____

e) 150 _____

_____

7. Use your answers to question 6 to help you list the factors of each number.

a) 124: _____

b) 215: _____

c) 150: _____

8. a) Sort these numbers in the Carroll diagram below.
16, 18, 27, 37, 120, 180, 281, 288, 352, 411, 432, 540

	Divisible by 9	Not divisible by 9
Divisible by 4		
Not divisible by 4		

b) Write one more number in each part of the Carroll diagram.
Explain how you knew where to place each number.

_____

_____

9. a) Sort these numbers in the Venn diagram.
12, 28, 36, 54, 72, 79, 135, 256, 270, 318, 371, 432

b) Which loop is empty? _____
Explain why there is no number that belongs in that loop.

_____

_____