

Divisibility Patterns

You can use a spreadsheet to help you explore divisibility patterns. Create a spreadsheet with 12 columns. Enter the numbers 1 through 100 in column A. In columns B through L, enter formulas to divide the numbers in column A by 2 through 12. For example, use the formula $(=A1/2)$ for column B. Create the formula in the first cell of each column and then copy and paste the formula in the other cells in the column.

The first few rows of your spreadsheet should look like this.

A	B	C	D	E	F	G	H	I	J	K	L
1	0.5	0.33	0.25	0.2	0.17	0.14	0.13	0.11	0.1	0.09	0.08
2	1	0.67	0.5	0.4	0.33	0.29	0.25	0.22	0.2	0.18	0.17
3	1.5	1	0.75	0.6	0.5	0.43	0.38	0.33	0.3	0.27	0.25
4	2	1.33	1	0.8	0.67	0.57	0.5	0.44	0.4	0.36	0.33

Print out a copy of the spreadsheet. Shade in the cells that contain whole numbers. Whole numbers show divisibility. For example, look at the 3 in column D, row 12. Look at the number to its left in column A, 12. The formula for column B is $A \div 4$, so 12 is divisible by 4.

Use the spreadsheet to answer the following questions.

1. How many numbers from 1 to 100 are divisible by 5?
2. How many numbers from 40 to 80 are divisible by 12?
3. How many odd numbers are divisible by 4?
4. Describe the numbers that are divisible by 2.
5. Describe the numbers that are divisible by 11.
6. All numbers that are divisible by 10 are also divisible by 2 and 5. Look at the numbers that are divisible by 12. What other numbers also divide these same numbers?

Bonus: Create another spreadsheet to find the numbers from 100 to 200 that are divisible by 11. Describe the pattern you see in these numbers.