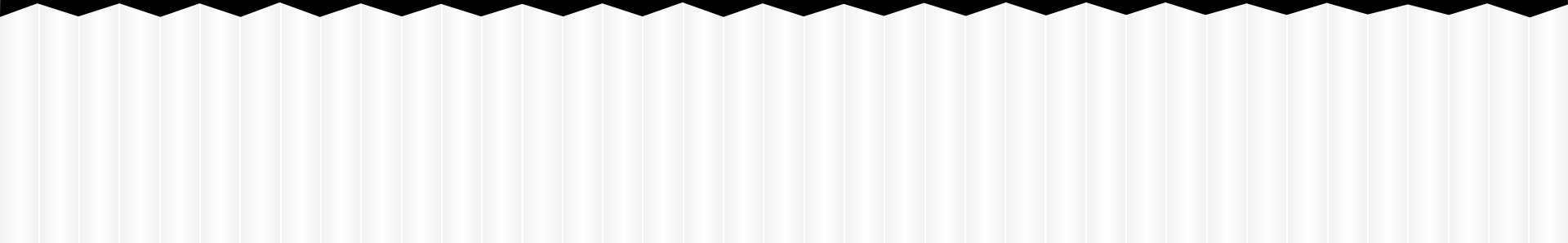


Divisibility, Factors & Multiples



Rules for Divisibility

A number is divisible by...	What is the general rule?	Example
2	The number is even	Can 1 564 be divided by 2? Why?
3	If the sum of the digits of the number is divisible by 3	Can 327 be divided by 3? $3 + 2 + 7 = 12$ $12 \div 3 = 4$
4	If the last two digits of the number are divisible by 4	Can 6 548 be divided by 4? $48 \div 4 = 12$
5	If the last digit of the number is either a 5 or a 0	Can 685 be divided by 5? Why?
6	If the number is even and the sum of the digits is divisible by 3	Can 360 be divided by 6? Why?
10	If the last digit of the number is a 0	Can 10 980 870 be divided by 10? Why?

Factors & Multiples

Factors and multiples are both to do with **multiplication**:

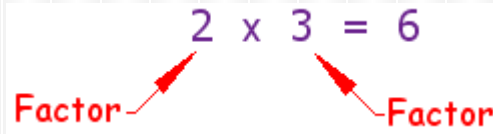
- "Factors" are the numbers we can **multiply together** to get another number
- Multiples are what we get **after** multiplying the number by an integer (not a fraction)

Factors

What is a factor?

Factors are numbers that you can multiply together to get another number:

Example: 2 and 3 are factors of 6, because $2 \times 3 = 6$



The diagram shows the equation $2 \times 3 = 6$ in purple text. Below the equation, the word "Factor" is written in red text twice. A red arrow points from the first "Factor" to the number 2, and another red arrow points from the second "Factor" to the number 3.

A number can have MANY factors!

Example 1: What are the factors of 12?

3 and 4 are factors of 12, because $3 \times 4 = 12$.

Also $2 \times 6 = 12$ so 2 and 6 are also factors of 12.

And $1 \times 12 = 12$ so 1 and 12 are factors of 12 as well

So what are the factors of 12? (1, 2, 3, 4, 6, 12)

Factors

Example 2:

List all the factors of 28

$$1 \times 28 = 28$$

$$2 \times 14 = 28$$

$$4 \times 7 = 28$$

So, all the factors of 28 are:

(1, 2, 4, 7, 14, 28)

Multiples

A multiple is the result of **multiplying** a number **by an integer** (not a fraction)

Example: Find the Multiples of 3

$$3 \times 0 = 0$$

$$3 \times 1 = 3$$

$$3 \times 2 = 6$$

$$3 \times 3 = 9$$

$$3 \times -1 = -3$$

$$3 \times -2 = -6$$

$$3 \times -3 = -9$$

..., -9, -6, -3, 0, 3, 6, 9, ...

Is 7 a multiple of 3? Why not?

Multiples

Example: Find the Multiples of 9

$$9 \times 0 = 0$$

$$9 \times 1 = 9$$

$$9 \times 2 = 18$$

$$9 \times 3 = 27$$

$$9 \times -1 = -9$$

$$9 \times -2 = -18$$

$$9 \times -3 = -27$$

..., -27, -18, -9, 0, 9, 18, 27, ...

Homework



Worksheets:

Page 18 - Part A all
Part B all

Page 19 -Part A all
Part B # 1, 2, 5
Part C & D

Page 20 - Part A # 1 - 5
Part B # 1 - 5
Part C & D