

Essential knowledge

Know what $y = mx + c$ means
 Know how to identify the y intercept.
 Know how to find the gradient.
 Know what a Factor is
 Know what a Multiple is
 Know what a Prime Number is
 Know what a counterexample is

Key Vocabulary

Array: an arrangement of items to represent concepts in rows or columns
 Multiples: found by multiplying any number by positive integers
 Factor: integers that multiply together to get another number
 Prime number – A number with only 2 factors, one and itself
 Gradient – Describes how steep a line is
 Y intercept – Where a line crosses the y axes

Prior learning links

Substitution
 Plotting straight line graphs
 Factors and multiples

Factors and multiples

Arrays can help represent factors

Factors of 10

•••••
 •••••
 2x5 or 5x2

•••••
 1x10 or 10x1

So factors are 1,10,2,5

Multiples are in the multiplication table
 e.g. multiples of 6 would be
 6,12,18,24

Prime number

A prime number is a number that has exactly two factors, 1 and itself .

The first 10 prime numbers are :
 2,3,5,7,11,13,17,19,23,29

Counter examples

A counter examples is where you use an example to prove a statement is wrong.

For example:

Use a counter example to prove the following statement wrong:

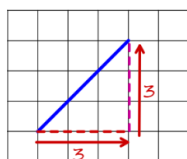
Numbers have at least 2 factors.

The number 1 has only 1 factor 1

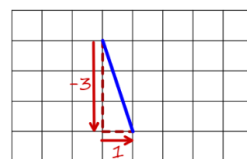
Gradient and y intercept

The gradient tells us the steepness of a line.

$$\text{Gradient} = \frac{\text{Change in } y}{\text{Change in } x}$$

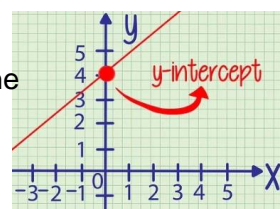


$$\text{Gradient} = \frac{3}{3} = 1$$



$$\text{Gradient} = \frac{-3}{1} = -3$$

Y intercept is where the line crosses the y axes.



Lines in the form $y = mx + c$

Line Equation: $y = 3x - 1$

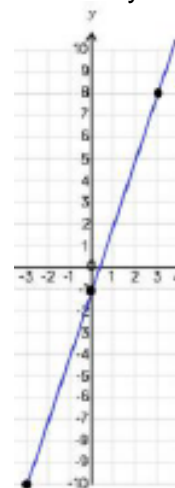
(This means the y co-ordinate can be found by multiplying the x co-ordinate by 3 then subtracting 1)
 Generate the co-ordinates in a table

$m = \text{gradient}$

$c = \text{y intercept}$

x	-3	0	3
y	-10	-1	8

* we need a minimum of 2 co-ordinates but we can be more accurate by generating more



Prior learning links

If $a = 7$ $b = 10$ $c = 3$ $d = 8$ and $e = 15$
Find the value of each expression.

- (a) $a + 5$
- (b) $b - 4$
- (c) $c + d$
- (d) $e - d$
- (e) $2a$
- (f) $4b$
- (g) $3e$
- (h) $5c$

Key Vocabulary

Define the following key words:

Array:

Multiples

Factor:

Prime number:

Gradient :

Y intercept :

Factors and multiples

Write all the factors of

- a) 24
- b) 36
- c) 64

What is the highest common factor of 36 and 72?

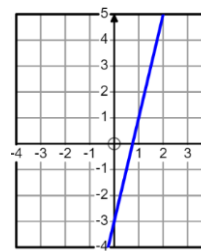
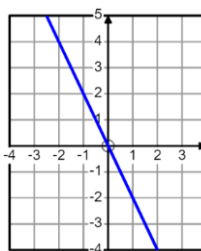
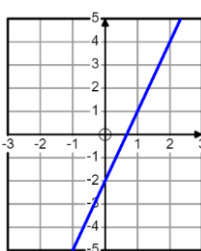
Write the first 5 multiples of

- a) 12
- b) 110
- c) 65

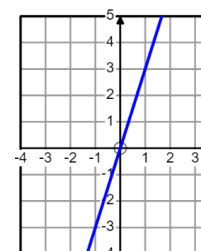
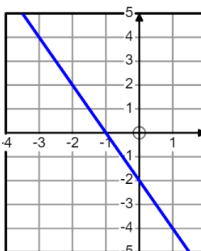
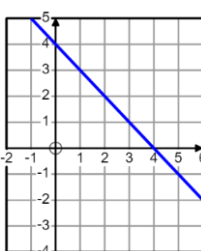
What is the Lowest common multiple of 6 & 7

Gradient and y intercept

Find the gradient of these lines.



State the y intercept of these lines.



Counter examples

Use a counter example to prove the statements wrong.

The sum of two positive odd numbers is always greater than their difference

Multiples of 3 are also multiples of 6

The sum of two odd numbers is odd

Lines in the form $y = mx + c$

Sketch the following graphs:

- (a) $y = 2x + 4$
- (b) $Y = -3x + 2$

Write down the equation of these lines.

