



Mathematics- Proportional Reasoning

What do I need to be able to do?

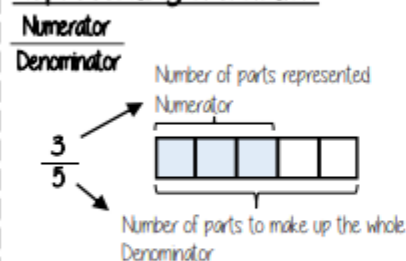
By the end of this unit you should be able to:

- Carry out any multiplication or division using fractions and integers
- Solutions can be modelled, described and reasoned

Keywords

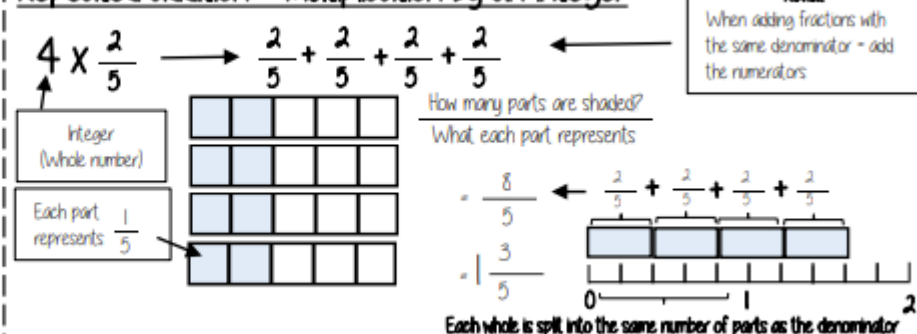
Numerator: the number above the line on a fraction. The top number. Represents how many parts are taken.
Denominator: the number below the line on a fraction. The number represents the total number of parts.
Whole: a positive number including zero without any decimal or fractional parts.
Commutative: an operation is commutative if changing the order does not change the result.
Unit Fraction: a fraction where the numerator is one and denominator a positive integer.
Non-unit Fraction: a fraction where the numerator is larger than one.
Dividend: the amount you want to divide up.
Divisor: the number that divides another number.
Quotient: the answer after we divide one number by another. e.g. dividend ÷ divisor = quotient.
Reciprocal: a pair of numbers that multiply together to give 1.

Representing a fraction



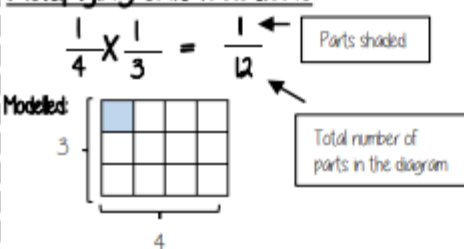
ALL PARTS of a fraction are of equal size

Repeated addition = multiplication by an integer

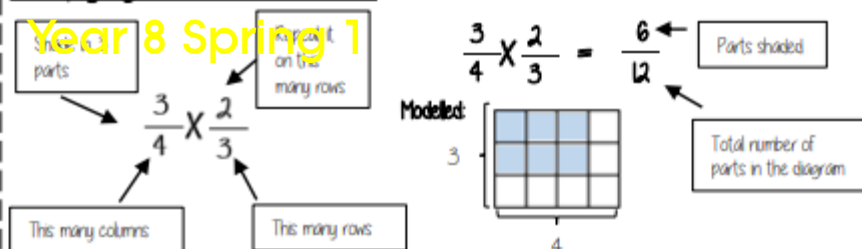


Revisit
 When adding fractions with the same denominator - add the numerators

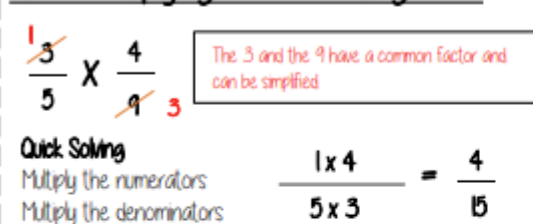
Multiplying unit fractions



Multiplying non-unit fractions

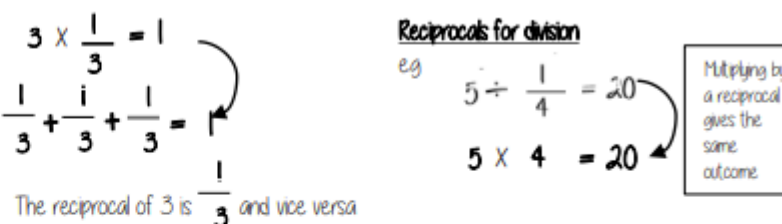


Quick Multiplying and Cancelling down

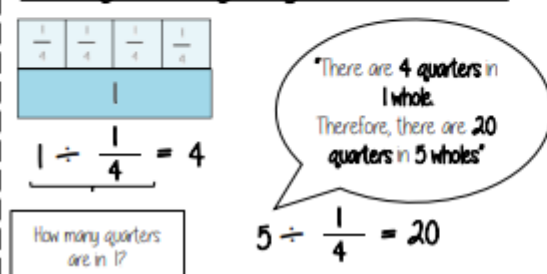


The reciprocal

When you multiply a number by its reciprocal the answer is always 1

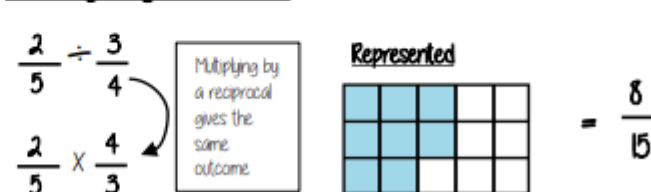


Dividing an integer by a unit fraction



Dividing any fractions

Remember to use reciprocals





What do I need to be able to do?

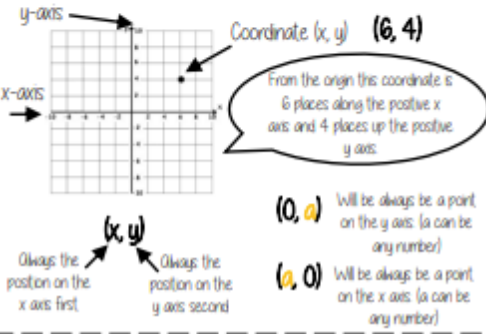
By the end of this unit you should be able to:

- Label and identify lines parallel to the axes
- Recognise and use basic straight lines
- Identify positive and negative gradients
- Link linear graphs to sequences
- Plot $y = mx + c$ graphs

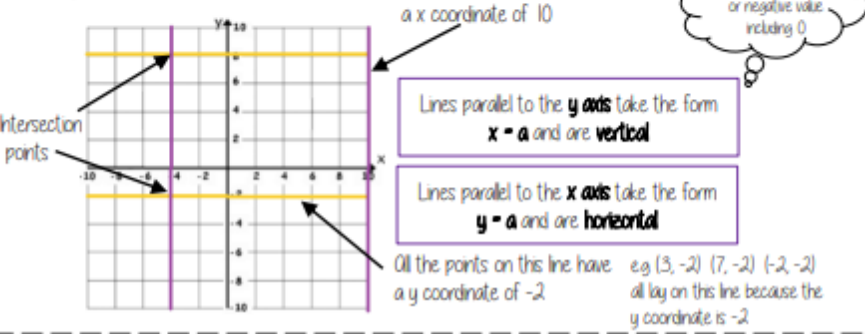
Keywords

- Quadrant:** four quarters of the coordinate plane
- Coordinate:** a set of values that show an exact position
- Horizontal:** a straight line from left to right (parallel to the x axis)
- Vertical:** a straight line from top to bottom (parallel to the y axis)
- Origin:** (0,0) on a graph. The point the two axes cross
- Parallel:** Lines that never meet
- Gradient:** The steepness of a line
- Intercept:** Where lines cross

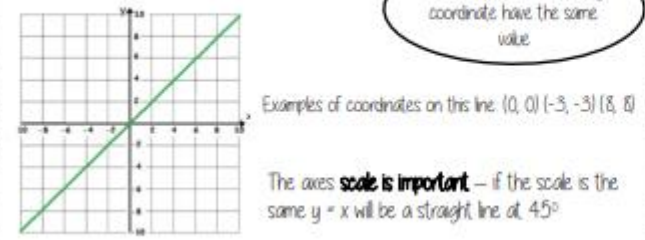
Coordinates in four quadrants



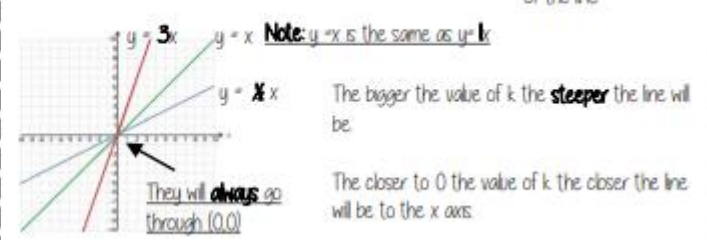
Lines parallel to the axes



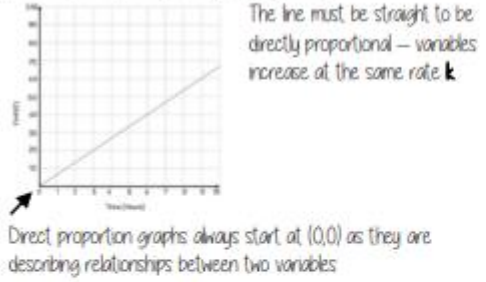
Recognise and use the line $y=x$



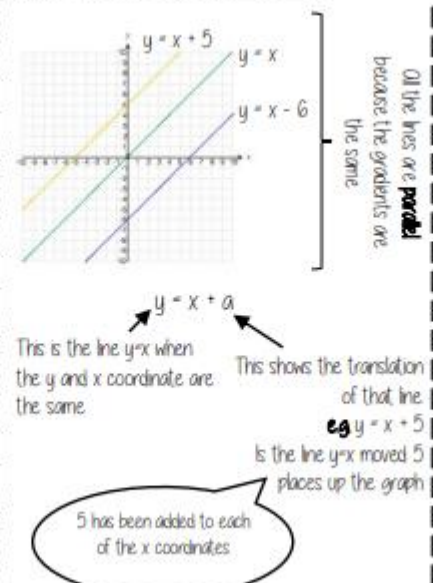
Recognise and use the lines $y=kx$



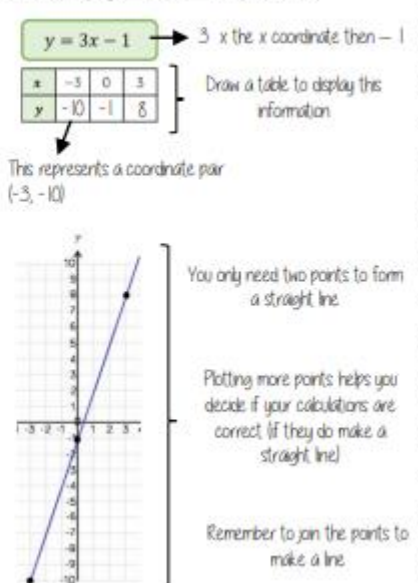
Direct Proportion using $y=kx$



Lines in the form $y = x + a$



Plotting $y = mx + c$ graphs



Lines with negative gradients

