Year 7- Directed number and adding fractions

Essential knowledge

How to define positive and negative numbers Subtraction is the additive inverse. The hierarchy of operations. Know addition and multiplication are commutative. Know the meaning of equivalent fractions, Know the meaning of improper fractions.

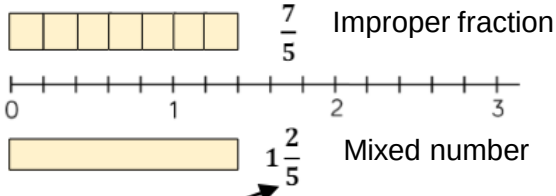
Key Vocabulary

Subtract: taking away one number from another.
Negative: a value less than zero.
Product: multiply terms Inverse: the opposite function
Numerator : The top number. Represents how many parts are taken
Denominator: The number represent the total number of parts Equivalent: of equal value
Mixed numbers: a number with an integer and a proper fraction Improper fractions: a fraction with a bigger numerator than denominator

Prior learning links

Adding fractions with the same denominator
Equivalent fractions
Representations of fractions
Value of negative numbers

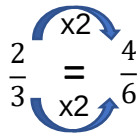
Improper fractions



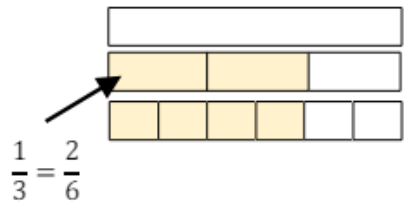
In this model 5 Parts make up A whole

Fractions can be Bigger than a whole

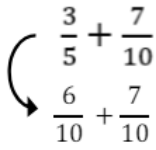
Equivalent fractions



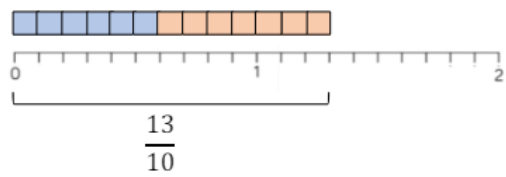
Numerator and denominator have the same multiplier



Adding and subtracting fractions



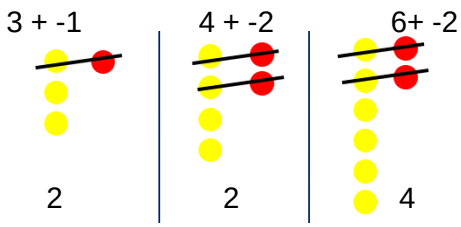
Addition and subtraction need a common denominator



When adding and subtracting with mixed numbers it is important to change to an improper fractions first.

Adding and subtracting negatives

1 + -1 = 0 A number and its opposite form make a zero pair.

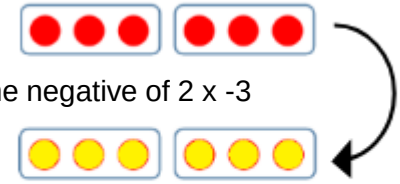


When you subtract it make be necessary to Add some zero pairs to the number so you have enough to subtract the values.

Multiplying and dividing negatives

-2 x 3

This is the negative of 2 x -3



The act of making counters into their negative is turning them over.

-2 x -3 = 6

Divisions are the inverse operations.

Year 7- Directed number and adding fractions

Prior learning links

Find the missing numbers

(a) $\frac{2}{3} = \frac{}{6}$ (b) $\frac{1}{5} = \frac{}{20}$ (c) $\frac{3}{4} = \frac{}{12}$

Calculate the following:

$\frac{1}{3}$ + $\frac{1}{3}$ =

(a) $\frac{2}{3} + \frac{2}{3}$ (b) $\frac{4}{5} + \frac{3}{5}$ (c) $\frac{7}{10} + \frac{4}{10}$

Key Vocabulary

Subtract:
Negative:
Product:
Inverse:
Numerator :
Denominator:
Equivalent:
Mixed numbers:
Improper fractions:

Equivalent fractions

Complete these pairs of equivalent fractions

(a) $\frac{2}{3} = \frac{}{6}$ (b) $\frac{1}{5} = \frac{}{20}$

(c) $\frac{3}{4} = \frac{}{12}$ (d) $\frac{5}{7} = \frac{10}{}$

Write down 3 different fractions that are equivalent to

$\frac{5}{7}$

Improper fractions

Change these mixed numbers to improper fractions:

(a) $2\frac{1}{5}$ (b) $3\frac{1}{2}$ (c) $1\frac{3}{4}$

(d) $3\frac{2}{3}$ (e) $1\frac{2}{5}$

Adding and subtracting fractions

Complete the following calculations

(a) $\frac{3}{4} + \frac{1}{2}$ (b) $\frac{5}{9} + \frac{2}{3}$ (c) $1\frac{3}{5} - \frac{3}{4}$

(a) $\frac{1}{2} - \frac{1}{4}$ (b) $\frac{2}{3} - \frac{1}{5}$ (c) $2\frac{4}{7} - 2\frac{1}{3}$

Adding and subtracting negatives

Complete the following calculations

(a) 2 − 3 (b) 3 − 5 (c) 4 − 9 (d) 1 − 5

(e) 5 − 7 (f) 6 − 7 (g) 8 − 11 (h) 2 − 10

(i) −2 + 4 (j) −3 + 9 (k) −7 + 10 (l) −6 + 1

(m) −5 + 8 (n) −9 + 7 (o) −20 + 11

(p) −12 + 18

If it helps you can draw out positive and negative signs to help you use the counter method.

Multiplying and dividing negatives

Complete the following calculations

(a) 2 × −3 (b) −4 × 3 (c) −5 × 5 (d) −7 × −2

(e) −6 × −3 (f) 8 × −4 (g) −9 × 3 (h) −5 × −8

(a) −10 ÷ 2 (b) −12 ÷ 3 (c) −24 ÷ 4 (d) −42÷ 6

(e) 9 ÷ −3 (f) 21 ÷ −7 (g) −44 ÷ 11 (h) −72 ÷ 9