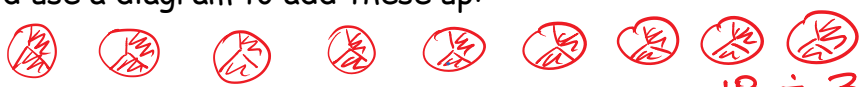
Date:_____

6.0 Notes: Adding and Subtracting Fractions

There are 9 people attending a party. Each person eats two-thirds of a pizza. How many pizza's are needed to feed everyone?

We could use a diagram to add these up:



= 18 shaded parts

= 18 slices of pizza

$18 \div 3 = 6$

= 6 pizzas

We could use an addition statement:

$$\frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3}$$

$$= \frac{18}{3} \quad = 6 \text{ pizzes}$$

Hikaru eats a quarter of a chocolate bar, and Nathan eats a half of a chocolate bar.

How much did they eat together?

We can still use a diagram:

$\frac{1}{4}$ $\frac{1}{2}$

$\frac{3}{4}$ of chocolate bar

How do we add these using an addition statement?

$$\frac{1}{4} + \frac{1}{2} \longrightarrow \frac{1}{2} \overset{\times 2}{\underset{\times 2}{}} = \frac{2}{4}$$

$$\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$$

$\frac{3}{4}$ ← numerator
← denominator

When adding or subtracting fractions, you need to have a Common denominator. Sometimes you will need to make equivalent fractions.

Find the equivalent fraction:

a) $\frac{1}{2} \overset{\times 2}{\underset{\times 2}{}} = \frac{2}{4}$ b) $\frac{1}{3} \overset{\times 3}{\underset{\times 3}{}} = \frac{3}{9}$ c) $\frac{1}{2} \overset{\times 6}{\underset{\times 6}{}} = \frac{6}{12}$

* Add or Subtract fractions *

→ Identify the lowest common denominator (LCD)

Note: It is best to work down the page in columns!

a) $\frac{1}{4} + \frac{1}{2} \overset{\times 2}{\underset{\times 2}{}} =$

LCD: 4

$\frac{1}{4} + \frac{2}{4}$

$= \frac{3}{4}$

b) $\frac{2}{3} \overset{\times 4}{\underset{\times 4}{}} + \frac{3}{4} \overset{\times 3}{\underset{\times 3}{}} =$

LCD: 12

$\frac{8}{12} + \frac{9}{12}$

$= \frac{17}{12} \rightarrow 1\frac{5}{12}$

c) $\frac{4}{5} \overset{\times 3}{\underset{\times 3}{}} - \frac{2}{3} \overset{\times 5}{\underset{\times 5}{}}$

LCD: 15

$= \frac{12}{15} - \frac{10}{15}$

$= \frac{2}{15}$

d) $\frac{5}{7} \overset{\times 3}{\underset{\times 3}{}} - \frac{1}{3} \overset{\times 7}{\underset{\times 7}{}}$

LCD: 21

$= \frac{15}{21} - \frac{7}{21}$

$= \frac{8}{21}$