A SINGAPORE MATH APPROACH

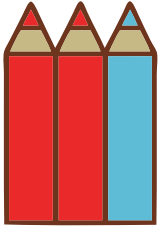# SIMPLEE LEARN
FRACTIONS
ADDITION AND SUBTRACTION

Ingrid Moats, M.Ed

WHAT ARE FRACTIONS?

Fractions tell us what the relationship of a part to a whole. With a fraction we are making a comparison of pieces or the number of items.
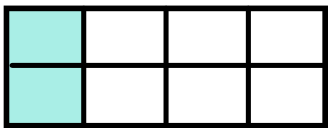
Here we have 3 pencils. There is 1 blue pencil. Blue pencils are $\frac{1}{3}$ of all the pencils.

The fraction of all pencils would be represented as $\frac{3}{3}$.

Here we have 7 slices of pizza. If we take one slice of pizza we will have 6 slices left over.   The fraction of the pizza taken is $\frac{1}{7}$ and the fraction of the pizza left is $\frac{6}{7}$.

Here we have a rectangle cut into 8 pieces. Two pieces of the rectangle are shaded in the light color. The fraction is $\frac{2}{8}$

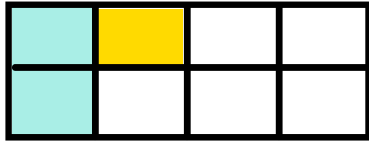How much is not shaded? What is that fraction?

What the fraction that represents the entire rectangle?

INTRODUCTION TO THE ADDITION OF FRACTIONS

Here we have 3 pencils. The is one red pencil. Red pencils are $\frac{1}{3}$ of all the pencils. Blue pencils are also $\frac{1}{3}$ of all the pencils.

Together red and blue make up $\frac{2}{3}$ of all the pencils.

Here we have a rectangle cut into 8 pieces.
$\frac{2}{8}$ of the rectangle is shaded in the light color.
$\frac{1}{8}$ of the rectangle is shaded in the dark color.
How much of the rectangle is shaded?

Color in the pieces to show the given fractions. Then, figure out the total that is shaded.
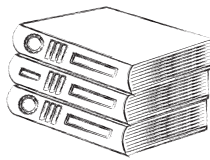
a) $\frac{1}{8}$ red

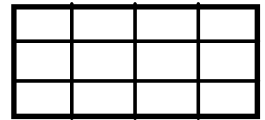$\frac{1}{8}$ blue

Total shaded:

b) $\frac{1}{3}$ green

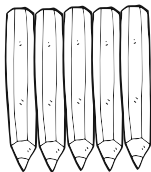$\frac{2}{3}$ purple

Total shaded:

c) $\frac{2}{12}$ yellow

$\frac{1}{12}$ red

Total shaded:
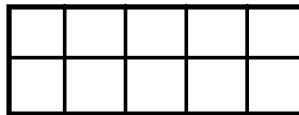
d) $\frac{1}{5}$ red

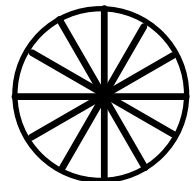$\frac{3}{5}$ blue

Total shaded:

e) $\frac{3}{10}$ green

$\frac{4}{10}$ purple

Total shaded:
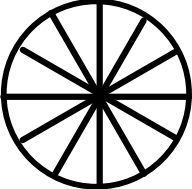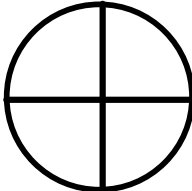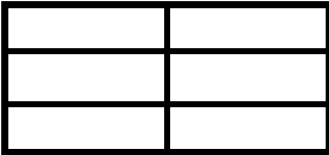
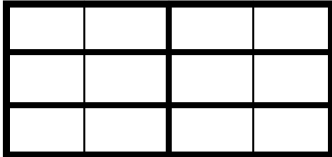f) $\frac{1}{12}$ yellow

$\frac{5}{12}$ red

Total shaded:

FRACTIONS WITH THE SAME DENOMINATORS
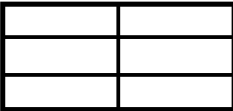
a)

$$\frac{5}{12} + \frac{2}{12}$$

b)

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

c)

$$\frac{3}{6} + \frac{3}{6}$$

d)

$$\frac{6}{12} + \frac{2}{12}$$

e)

$$\frac{3}{6} + \frac{2}{6}$$

f)

$$\frac{6}{9} + \frac{2}{9}$$

g)

$$\frac{2}{12} + \frac{5}{12}$$

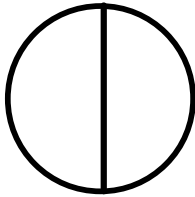h)

$$\frac{1}{12} + \frac{1}{12} + \frac{2}{12}$$
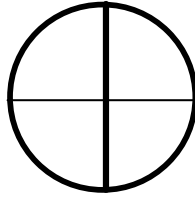
3

EQUIVALENT FRACTIONS

Equivalent fractions are EQUAL.

Color in the pieces to show the stated fractions. Then, figure out the missing number for the equivalent fraction.
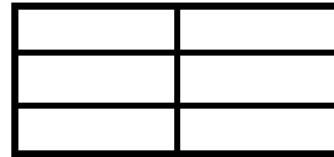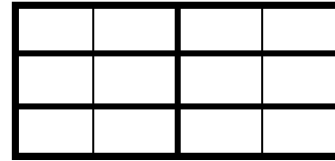
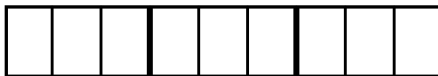a)

$\frac{1}{2}$

$\frac{\square}{4}$

b)

$\frac{3}{6}$

$\frac{\square}{12}$

c)
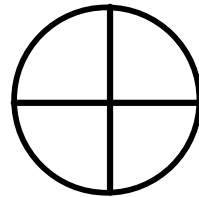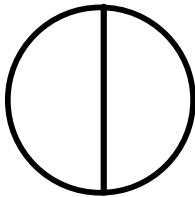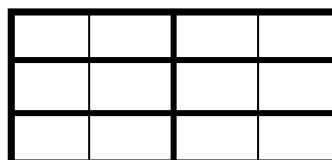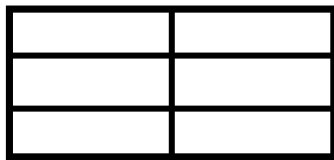
$\frac{2}{3}$

$\frac{\square}{9}$

ADDING FRACTIONS WITH DIFFERENT DENOMINATORS

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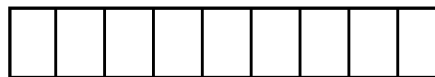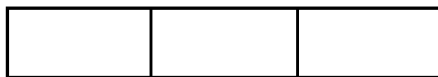
$\frac{1}{2} + \frac{1}{4}$

b)

$\frac{3}{6} + \frac{5}{12}$

c)

$\frac{1}{3} + \frac{4}{9}$

ADDING FRACTIONS

Add the following. Then use the letters to complete the riddle.

a) $\frac{1}{4} + \frac{3}{8} = \frac{\square}{8} + \frac{3}{8} = \frac{\square}{8}$ **T**

b) $\frac{1}{2} + \frac{3}{8} = \frac{\square}{8} + \frac{3}{8} = \frac{\square}{8}$ **T**

c) $\frac{1}{3} + \frac{1}{6} = \frac{\square}{6} + \frac{1}{6} =$ **S**

d) $\frac{1}{2} + \frac{1}{6} = \frac{\square}{6} + \frac{1}{6} =$ **U**

e) $\frac{1}{5} + \frac{3}{10}$ **R**   f) $\frac{1}{3} + \frac{3}{6}$ **N**

g) $\frac{1}{3} + \frac{1}{9} + \frac{2}{9}$ **O**   h) $\frac{1}{12} + \frac{1}{12} + \frac{1}{6}$ **A**

What do you call a squirrel that goes into space?

$$\frac{4}{12}, \frac{3}{6}, \frac{7}{8}, \frac{5}{10}, \frac{6}{9} - \frac{5}{6}, \frac{4}{6}, \frac{7}{8}$$

$\square\square\square\square\square\square$ $\square\square\square$

WHAT MAKES FRACTIONS EQUIVALENT?

Are these fractions equivalent? Why or why not?

What can you multiply by to get the other number?

a) $\dfrac{1}{2}$, $\dfrac{5}{12}$
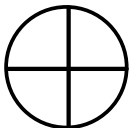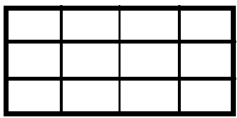
b) $\dfrac{2}{8}$, $\dfrac{1}{4}$
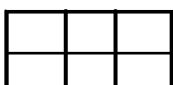
c) $\dfrac{1}{3}$, $\dfrac{2}{6}$

d) $\dfrac{4}{10}$, $\dfrac{3}{5}$

EQUIVALENT FRACTIONS FOR ONE WHOLE

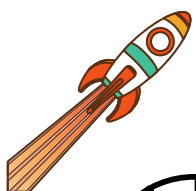Example

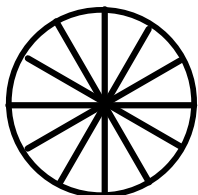a) 1 whole = $\dfrac{4}{4}$

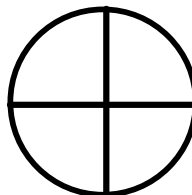b) 1 whole =

c)

1 whole =

d)

1 whole =

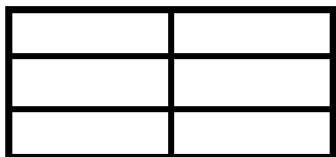# SUBTRACTING FRACTIONS WITH THE SAME DENOMINATORS
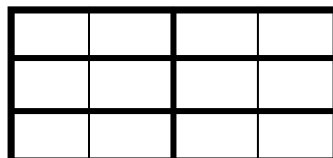
a) $\dfrac{5}{12} - \dfrac{2}{12}$

b) $\dfrac{3}{4} - \dfrac{1}{4}$

c) $\dfrac{3}{6} - \dfrac{3}{6}$

d) $\dfrac{6}{12} - \dfrac{2}{12}$

e) $\dfrac{3}{6} - \dfrac{2}{6}$

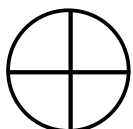f) $\dfrac{6}{9} - \dfrac{2}{9}$

g) $\dfrac{6}{7} - \dfrac{1}{7}$

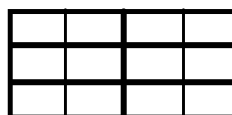h) $\dfrac{5}{12} - \dfrac{1}{12} - \dfrac{2}{12}$

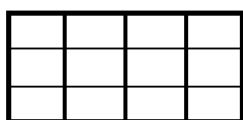# SUBTRACTING FRACTIONS WITH DIFFERENT DENOMINATORS

a) $\dfrac{1}{2} - \dfrac{1}{4}$

b) $\dfrac{3}{6} - \dfrac{5}{12}$

c) $\dfrac{1}{4} - \dfrac{2}{12}$

d) $1 - \dfrac{4}{10}$

SUBTRACTING FRACTIONS WITH DIFFERENT DENOMINATORS

Subtract the following. Then use the letters to complete the riddle.

a) $\dfrac{3}{4} - \dfrac{1}{2}$ **P**

b) $\dfrac{7}{10} - \dfrac{2}{5}$ **E**

c) $\dfrac{11}{12} - \dfrac{1}{4}$ **S**

d) $\dfrac{2}{7} - \dfrac{1}{14}$ **T**

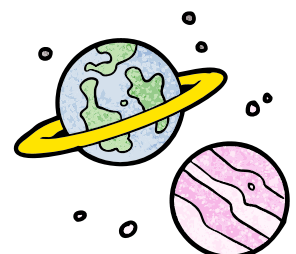e) $\dfrac{1}{6} - \dfrac{1}{12}$ **U**

f) $\dfrac{5}{8} - \dfrac{1}{4}$ **N**

What kind of music do planets sing?

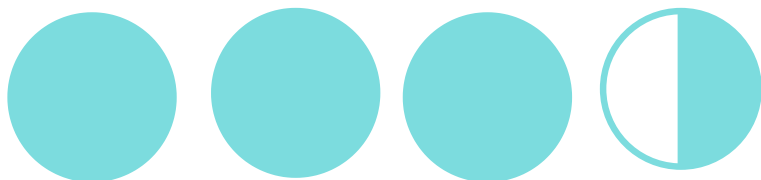$\dfrac{3}{8}, \dfrac{3}{10}, \dfrac{1}{4}, \dfrac{3}{14}, \dfrac{1}{12}, \dfrac{3}{8}, \dfrac{3}{10}, \dfrac{8}{12}$

MIXED NUMBERS
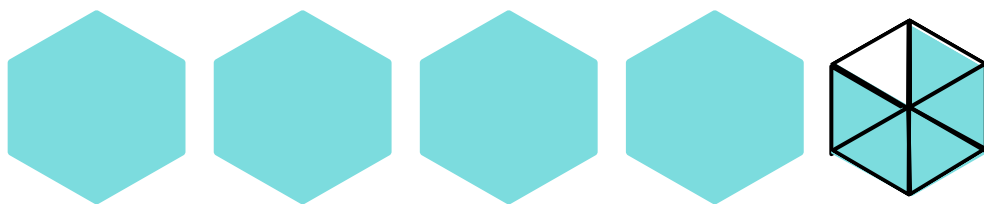
Fill in the blanks, then write the mixed number.

1.

_____ wholes and _____ half = $3 \frac{1}{2}$

2.

_____ wholes and _____ quarters =

3.

_____ wholes and _____ sixths =

4. $3 + \dfrac{5}{8} = $

5. $\boxed{} + \dfrac{3}{5} = 4 \dfrac{3}{5}$

6. $\dfrac{2}{9} + 3 = $

7. $7 + \boxed{} = 7 \dfrac{6}{7}$