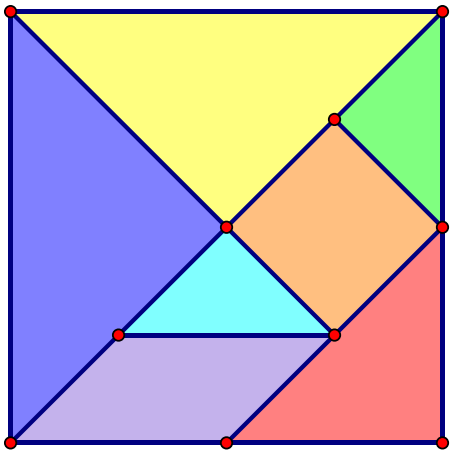
LESSON 2 BASIC PROPERTIES OF FRACTIONS – EQUIVALENT FRACTION

<Example 1> Look at the picture and answer questions:

If we consider the square as a whole, what fractions can you get from the tangram? Write down as many as you can and share with your desk mates.



Can you find some fractions with the same value but with different numerators and denominators?
Can you find some pattern in them?

<Example 2> Fill in the blanks:

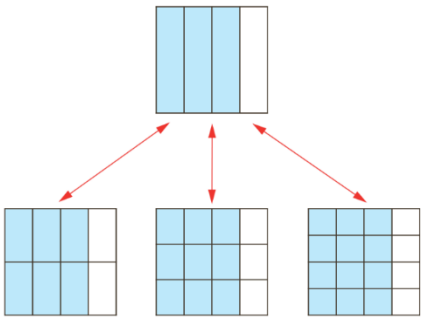
We know 1 hour is _____ minutes. So, 1 minute is _____ hour.

7 minutes equals to _____ hour. 10 minutes equals to _____ hour.

15 minutes equals to _____ hour. 40 minutes equals to _____ hour.

Can you find some other fractions that suit the last 3 blanks? What can you conclude?

<Example 3> Look at the picture and find the answer:

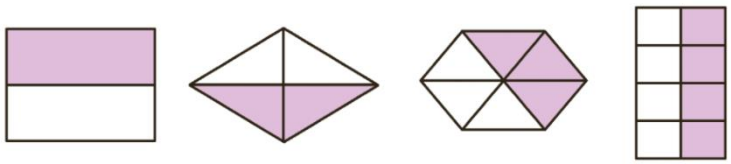


Dylan, Emma, and Poppy are using squares of paper. 3 quarter of the paper is coloured. They fold the paper into different patterns to show equal divisions.

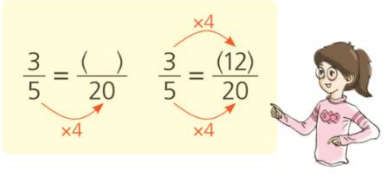
Look at their sheets of paper. What conclusion can you make? What fractions can be written to represent the coloured part of the paper? What is the relationship between these fractions?

<Exercise 1>

1. Use the fractions to describe the coloured part of each shape. What is the relationship between these fractions?



2. Write the correct number in the brackets: $\frac{3}{5} = \frac{(\quad)}{20}$.



The basic property of fractions:

M_____ or d_____ the numerator and the denominator of a fraction by a number that is not 0 gives a new fraction that is equivalent or equal to the original one. That is

$$\frac{a}{b}=\frac{a\times k}{b\times k}=\frac{a\div n}{b\div n}\left(b\neq 0,k\neq 0,n\neq 0\right)$$

<Example 4> List three fractions that are equal to $\frac{2}{5}$

Solution

<Example 5> Change $\frac{2}{5}$ and $\frac{8}{60}$ into equivalent fractions with denominator 15.

Solution

<Exercise 2>

1. Write the correct numbers in the brackets to make the equation true.

a. $\frac{9}{15}=\frac{3\times(\quad)}{5\times(\quad)}$ b. $\frac{2\times(\quad)}{9\times(\quad)}=\frac{8}{(\quad)}$

c. $\frac{5\times(\quad)}{2\times(\quad)}=\frac{(\quad)}{14}$ d. $\frac{5\div(\quad)}{20\div(\quad)}=\frac{(\quad)}{4}$

2. Write three equivalent fractions with different denominators for each of these fractions.

a. $\frac{1}{4}$ b. $\frac{5}{7}$ c. $\frac{4}{6}$ d. $\frac{10}{4}$

3. Plot $\frac{1}{2}$, $\frac{2}{4}$ and $\frac{4}{8}$ on a number line. What conclusion can you make?

4. Change $\frac{2}{3}$ and $\frac{8}{30}$ into equivalent fractions with denominator 15.

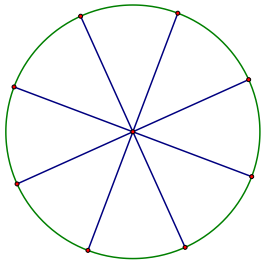
5. Write the correct numbers in the brackets.

a. $\frac{1}{4}=\frac{(\quad)}{12}$ b. $\frac{3}{7}=\frac{(\quad)}{56}$ c. $\frac{6}{5}=\frac{30}{(\quad)}$

d. $\frac{(\quad)}{10}=\frac{4}{20}$ e. $\frac{36}{24}=\frac{(\quad)}{8}$ f. $\frac{7}{35}=\frac{1}{(\quad)}$

g. $\frac{18}{(\quad)}=\frac{6}{12}$ h. $\frac{20}{16}=\frac{5}{(\quad)}$

<homework> Look at the picture and find the answer:



$\frac{(\quad)}{360}=\frac{1}{8}$; $\frac{(\quad)}{360}=\frac{3}{8}$; $\frac{(\quad)}{360}=\frac{3}{4}$

Further questions:

$\frac{(\quad)}{360}=\frac{1}{6}$, $\frac{120}{360}=\frac{(\quad)}{(\quad)}$, $\frac{144}{360}=\frac{(\quad)}{(\quad)}$, $\frac{(\quad)}{360}=\frac{(\quad)}{(\quad)}$