

UNIT 2 - FRACTIONS

•A **fraction** expresses part of a whole that has been divided into equal parts. The **numerator** expresses the number of parts in the fraction. The **denominator** expresses the number of parts in the whole group.

EXERCISES:

1-Write the fraction:

- | | | |
|-----------------------|--------------------|-------------------|
| a) Half | b) Two thirds | c) Seven sixths |
| d) Five thirds | e) Three eighths | f) Three quarters |
| g) Five ninths | h) Two fifths | i) Three tenths |
| j) Two sevenths | k) Six ninths | l) One sixth |
| m) Two over seventeen | k) Six over ninety | l) One over sixty |

2-Write down how these fractions are read:

- | | | |
|-------------------|--------------------|--------------------|
| a) $\frac{3}{2}$ | b) $\frac{3}{5}$ | c) $\frac{1}{4}$ |
| d) $\frac{1}{3}$ | e) $\frac{3}{10}$ | f) $\frac{5}{7}$ |
| g) $\frac{6}{7}$ | h) $\frac{1}{8}$ | i) $\frac{4}{9}$ |
| j) $\frac{4}{52}$ | k) $\frac{14}{40}$ | l) $\frac{25}{39}$ |

•A **proper fraction** is smaller than the unit (the numerator is less than the denominator).

•An **improper fraction** is more than the unit (the numerator is greater than the denominator).

EXERCISES:

3-Write the signs for “greater than” (>), “less than” (<) or “equal to” (=), as required in each case.

- | | | |
|----------------------|----------------------|----------------------|
| a) $\frac{1}{5} < 1$ | b) $\frac{2}{3} < 1$ | c) $\frac{4}{4} = 1$ |
| d) $\frac{7}{6} > 1$ | e) $\frac{5}{5} = 1$ | f) $\frac{3}{7} < 1$ |

4-A bag holds 4 white marbles and 2 black marbles. What fraction of the marbles are white?

5-David has eaten $\frac{3}{8}$ of his chocolate bar. What fraction does he have left?

6-A 5-litre jug is used to fill 30 cups. What fraction of a litre fits in each cup?

• **Equivalent fractions** are fractions which are of equal value but one is a multiple of the other.

Simplify or reduce a fraction is to get the numerator and denominator as small as possible. Remember you can divide the numerator and the denominator by any number... as long as you use the same number for both!

7-Write two fractions that are equivalent to the given fraction:

a) $\frac{3}{10}$ b) $\frac{7}{13}$ c) $\frac{15}{33}$

8-Replace each x with a number so the fractions are equivalent:

a) $\frac{24}{x} = \frac{12}{20}$

b) $\frac{1}{3} = \frac{27}{x}$

c) $\frac{18}{24} = \frac{x}{4}$

9-Write each fraction in simplest form, unless the fraction is already in simplest form.

a) $\frac{24}{30}$

b) $\frac{60}{110}$

c) $\frac{37}{8}$

• **Ordering (Comparing) fractions.** To decide which fraction is greater,

1. Reduce the fractions to the Least Common Denominator, finding the smallest multiple (LCM) of them.
2. Rewrite the fractions as equivalent fractions with the LCM as the denominator.
3. Compare the numerators.

10-Reduce to the Least Common Denominator $\frac{3}{4}$ and $\frac{5}{6}$

11-Order Order the fractions from least to greatest.

a) $\frac{3}{4}, \frac{2}{5}, \frac{5}{8}, \frac{1}{2}$

b) $\frac{11}{12}, \frac{5}{6}, \frac{3}{4}, \frac{9}{16}$

• **Adding and subtracting fractions with the same denominator (Like fractions).** You can **add** and **subtract** like fractions easily - simply add or subtract the numerators and write the sum over the common denominator.

• **Adding and subtracting fractions with different denominator (Unlike fractions).** Before you can add or subtract fractions with different denominators, you must reduce them to the LCD.

12-How much is $\frac{2}{9}$ pound **plus** $\frac{1}{3}$ pound?

13-How much longer is $\frac{3}{8}$ foot than $\frac{1}{4}$ foot?

14-Yesterday a gardener watered one third of his field and today he watered half of the remaining land. What is the total fraction of land watered?

15-A plane is carrying 200 passengers. Half of them are European, one fourth are African and the rest are American. How many Americans are on the plane?

16-A newborn bear grew about $\frac{9}{16}$ pound the first week and about $\frac{5}{8}$ pound the second week. How much more did the bear grow the second week? Justify your answer.