higher education & training

Department:
Higher Education and Training
REPUBLIC OF SOUTH AFRICA

Tshwane South TVET College

"achieve the future"

SUBJECT:MATHEMATICAL LITERACY

LEVEL: 3

MODULE 1: NUMBERS

RATIO

After completing this topic, you will be able to:

- *Solve problems that involve ratio/proportion (linear and inverse) and/or rate and/or percentage. (LO: 1.2,1.4,1.6,2.1) (AS: 1.2.2 problems dealing with ratio/ proportion, rate and percentage are solved).*

Numbers: Ratio

Content

In this lesson we will look at what ratio is and how we use it in daily activities.

- A ratio compares two or more quantities of the same kind.
- Ratio is often used in the same breath as proportion and/or rate
- In words ……. (a to b)
- With a colon….(a : b)
- As a fraction …$\frac{a}{b}$

Ratios do not have units as we compare quantities of the same kind.

Methods and worked examples:

	Gravel	Sand	Cement
Low strength	6	3	1
Medium strength	4	2	1

The ratio are given with no units .The builder will therefore choose a unit that suits him. He could mix a low strength concrete by using 6 wheel barrows of gravel; 3 wheelbarrows of sand; and 1 wheelbarrow of concrete or if he wanted only a small amount ,he could mix 6 buckets of gravel; 3 buckets of sand; and 1 bucket of cement.

CLASS ACTIVITIES

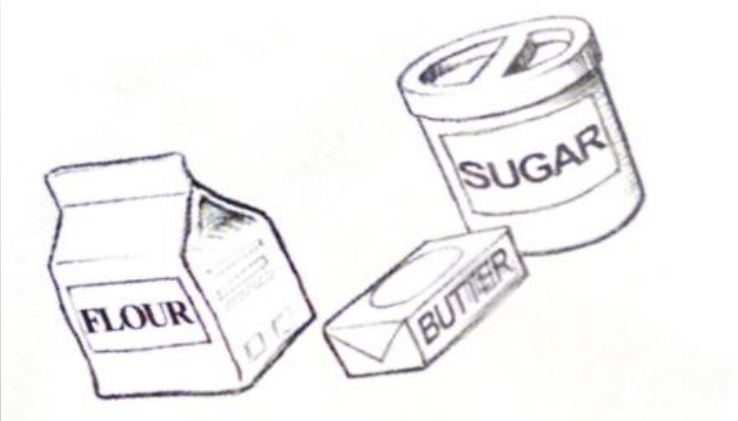
1.Bokamoso's recipe for shortbread requires 1 kg flour, 375 g butter and 250 g sugar.

1.1 Determine the ratio flour: butter: sugar according to mass, in the recipe. Give the ratio in its simplest form.

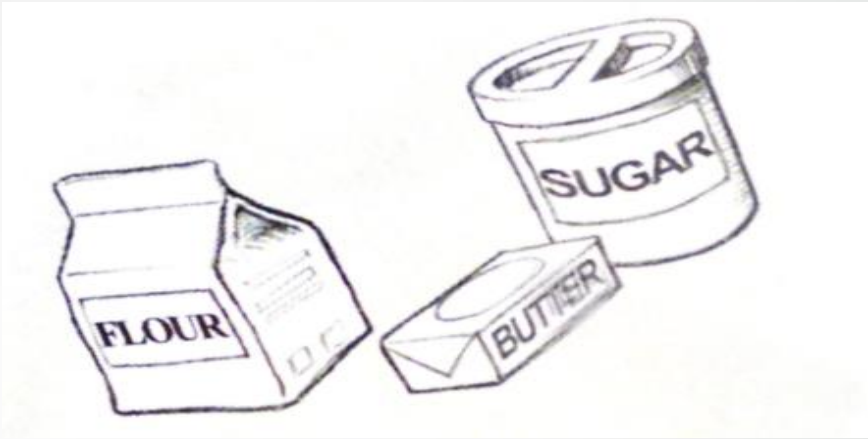
1.2. What is the total mass of the ingredients needed?

1.3. What fraction is the total mass of the ingredients is due to butter?

1.4. If Bokamoso wants to use 480 g butter to make shortbread, how many grams of flour and grams of sugar will Bokamoso need?



Solution



- 1.1 1kg = 1 000g

∴ flour :butter: sugar

1 000 : 375 : 250

8:3:2 (each number is divided by 125)

1.2 Total mass of ingredients

= 1 000 + 375 + 250

= 1 625 g or (1,625 kg)

1.3 Butter is $\frac{375}{1\,625} = \frac{3}{13}$ of the total mass of ingredients.

1.4 if 480 g is 3 parts, then $\frac{480}{3}$ = 160 is one part.

Amount of flour required: 8 x 160 = 1 280 g

Amount of sugar required: 2 x 160 = 320 g

Bokamoso needs 1,28 kg flour and 0,32 kg sugar to make shortbread