**SECOND TERM E NOTES**

**+**

**SUBJECT: MATHEMATICS**

**CLASS: BASIC FIVE**

WEEK TOPIC

1. RATIO AND PERCENTAGE
2. SIMPLE PROBLEMS ON PERCENTAGE
3. MONEY: profit and loss
4. MONEY: SIMPLE INTEREST
5. MONEY: DISCOUNT AND COMMISION
6. PERIMETER OF PLANE SHAPES
7. AREA OF RIGHT ANGLED TRIANGLE
8. VOLUME
9. PROBLEM ON WEIGHT
10. AVERAGE SPEED

**WEEK ONE**

**RATIO AND PERCENTAGE**

**Meaning of ratio**

The relation between two quantities (both of the same units) obtained by dividing one quantity with another is called ratio. Ratio can be denoted by using the symbol ( : ).

EXAMPLE 1

What is the ratio between the weight two bags of sugar of 4kg and 6kg respectively?

**Solution**

Ratio of weights of bags of sugar = 4kg/ 6kg = 2/3 = 2:3

EXAMPLE 2

A pole of length 165cm is divided into two parts such that lengths are in the ration 7:8. Find the length of each part of the pole?

Total ratio = 7 + 8 = 15

First part = 7/15 , second part = 8/15

Length of first part = 7/15 of 165cm

= 7/15 × 165

= 7 x 11 = 77cm

1 x 1

Leght of second part = 165cm – 77cm = 88cm

DIRECT PROPORTION

Examples

1. A marker costs $18. Calculate the cost of 5 markers.
2. A student went to the market to purchase textbooks. He purchased two textbooks for $24
3. What is the price of one notebook?
4. What would be the price of 5 such note

Solution

1. If one marker = $18

5 markers = $18 x 5 = $90

1. 2 textbooks = $24

1 textbook = m

2 × m = 1 x $24

2m = $24

M = $24 ÷ 2 = $12. Therefore 1 textbook = $24

(b)since 1 textbook = $12

5 textbooks = $12 × 5 = $60

EVALUATION

1. What is ratio?
2. Find the ratio of each of the following in its lowest terms:
3. 24cm: 72cm
4. 425km: 750km
5. 75min: 150min
6. 85kg: 102kg
7. A field is 50m in length and 60m in width. Find the ratio between its width and length.
8. A scooter can travel 225km with 5 litres of petrol. How many litres of petrol is needed to travel 675km?

WEEK TWO

SIMPLE PROBLEMS ON PERCENTAGES

Percentages are fractions with 100 as denominator

EXAMPLE 1

Change the following fractions to percentages

1. 2/5  = 2/5 of 100 = 2/5 × 100 = 200 = 40%

5

EXAMPLE 2

Change these percentage to fractions

1. 75% = 75 = 15 = 3

100 20 4

EXAMPLE 3

Change 7 ½% to fractions in their lowest terms

Solution

7 ½ % = 7 ½ out of 100

= 15/2 × 1/100

= (15 × 1) ÷ 200

= 15 ÷ 200 = 3/40

EXERCISE

Change the following fraction to percentage

1. 2/5
2. 2/4
3. 3/30

Change to fractions in their lowest terms

1. 66 ½ %
2. 12 ¼ %
3. 16 2/3 %

**WEEK THREE**

**MONEY: PROFIT AND LOSS**

MEANING OF PROFIT

When the selling price of an article is higher or greater than the cost price, we have a profit or gain.

Profit = selling price – cost price

MEANING OF LOSS

When the selling price is less than cost price we have a loss.

Loss = cost price – selling price

EXAMPLE 1

If a clock is bought for $1,145 and sold for $1,170, what is the gain or losss

Solution

Cost price of clock = $1,145

Selling price = $1, 170

Since the selling price is more than the cost price, we have a profit

Profit = $1,170 - $1,145 = $25

EXAMPLE 2

By selling a tin of oil for $1,320, a man made a profit of $150. How much did he pay for it?

Solution

Selling price = $1,320

Profit = $150

Cost price = $1,320 - $150 = $1,170.

EXERCISE

1. I bought an exercise book for $2500 and sold it for $3,200. How much profit did I make
2. An article is sold for $4,000 and the loss is $1,050. Fin the cost price of the article
3. A wrist watch is bought for $3,887 and sold for a profit of $722. Find the selling price
4. A trader bought a dozen candles for $1,020 and sold them all at $960. What is the profit or loss of each candle?

**WEEK FOUR**

**SIMPLE INTERREST**

**Meaning of interest**: interest means the extra money that you [ay back when ypu borrow money that you receive when you invest money.

EXAMPLE 1

find the simple interst on $1,000 for 5 years at 3% per annum.

**SOLUTION**

Principal = $1,000 ( the amount borrowed

Time = 5 years ( the period for which the money is borrowed before it is paid back in full)

Rate = 3% ( extra money paid)

Simple interest = P x R x T

100

= 1,000 x 3 x 5

100

= 10 x 3 x 5 = $150

EXAMPLE 2

Seun deposit $14,500 in a savings Bank account at UBA which pays an interest rate of 15% per annum for 2 ½ years. What is the simple interest?

**Solution**

Principal = $14,500

Rate= 15%

Time= 2 ½ or 2.5 years

SI = P x R x T

100

= 14500 x 15 x 2.5 = 145 x 15 x 2.5 = $5, 437.50

100

**EXERCISE**

Copy and complete the table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | Principlal | Rate | Time | Simple interest |
|  | $23,00 | 5% | 4 years |  |
|  | $19,000 | 6% | 7 years |  |
|  | $28,000 | 3% | 2 years |  |
|  | $30,000 | 4% |  | $6,000 |

**WEEK FIVE**

PROFIT AND LOSS PERCENT

Profit or losss percent is expressed as a percentage of the cost price

EXAMPLE 1

An article bought for $3,ooo was sold for $3,300. Find the profit percent

Solution

Cost price = $3,000

Selling price = $3,300

Profit = $3300 - $3,000 = $300

Profit % = Profit x 100

Cost price 1

**=** 300 x 100

3000 1

= 300 x 1 = 300 = 10%

30 x 1 30

EXAMPLE 2

A book bought for $25,00 was sold for $22,000. What is theloss percent?

Soplution

Cost price =$25,000

Selling price= $22,000

Loss = $25,000 - $22,000 = $3,000

Loss % =loss x 100

Cost price 1

=3000 x 100 = 12%

25000 1

**EXERCISE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Cost price | Selling price | Profit % | Loss% |
| 1. | $1,300 | $1,365 |  |  |
|  | $33,555 | $32,446 |  |  |
|  | $56,000 | $59,540 |  |  |
|  | $100,680 | $99,960 |  |  |

**WEEK SIX**

**PERIMETER OF PLANE SHAPES**

1. Square L

L L perimeter = L + L + L + L = 4L

L

1. Rectangle L

**L** L perimeter = L + L + B + B

**=** 2L + 2B = 2 ( L+B)

L

1. Circle

Perimeter = 2 x π x r

= 2πr

Where π = 22/7 or 3.142

**EXAMPLE**

Cxalculate the perimeter 9cm

9cm 9cm

**9cm**

Perimeter = 4 x length

= 4 x 9cm

= 36cm

EXAMPLE 2

CAlculate the Perimeter of the rectangle

15cm

9cm

**Perimeter** = 2 ( L+B)

= 2 (15cm + 9cm)

= 2(24cm) = 2x 24 = 28cm

**EXAMPLE 3**

Calculate the perimeter of the circle of radius 14cm. Take π = 22/7

Perimeter = 2 π r

= 2 x π x r

= 2 x 22 x 14

7

= 2 x 22 x 2 = 88cm

**EXERCISE 1**

CALCULATE THE PEREIMETER OF THE RECTANGLES WITJHH THE FOLLOWING DIMENSIONS

1. Leght = 9cm, breadth = 5cm
2. Length= 12cm, breadth = 7cm
3. Length = 14cm, breadth = 1ocm
4. Length = 16cm, breadth =11cm
5. Length = 11.5cm, breadth = 4.5cm

EXERCISE 2

Calculate the perimeter of the following circles. Take π = 22/7

1. Radius = 7cm
2. Radius = 14cm
3. Radius = 3.5
4. Radius = 21cm
5. Radius =28cm
6. Radius = 12cm
7. Radius = 35cm
8. Radius = 4.9cm

**WEEK SEVEN**

**AREA OF RIGHT ANGLED TRIANGLE**

A right-angled triangle has 3 – sides

**A**

Height

**B C**

Example 1

Calculate the area of a triangle of height 12cm and base 13cm

Solution

12cm

13cm

Area of tringle = ½ x base x height

= ½ x 12cm x 13cm

1 1

= 1 x 6cm x 13cm **=** 78cm2

EXERCISE

Calculate the area of the triangles with the followinh dimensions

1. Base = 14cm, height = 16cm
2. Base = 10cm, height = 8cm
3. Base = 25cm, height = 22cm
4. Base = 30cm, height = 15cm
5. Base = 24cm, height = 18cm
6. Base = 14cm, height = 16cm
7. Base = 34cm, height = 15cm
8. Base = 52cm, height = 48cm

**WEEK EIGHT**

**VOLUME OF CYLINDER**

**Radius**

**Height**

**Vo**lume of cylinder = πr2h

= π x r x r x h

EXAMPLE

Find the volume of a cylinder of radius 3 ½ cm and height 12cm

**Solution**

**3 ½**

**12cm**

**Volume =** π x r x r x h

=22 x 7 x 7 x 12cm

7 x 2 x 2 x 1

= 22 x 7 x 3

**1 x 1 x 1**

**= 462cm3**

Exercise

(take π= 22/7) Find the volume of cylinders whose radii and heights are given as:

1. Radius 3.5cm, height = 10cm
2. Radius 10.5, height 10m
3. Radius 4.2cm, height15cm
4. Diameter = 1o½cm, height 16cm
5. Diameter = 14cm, height 15cm

­­

**WEEK NINE & TEN**

**WEIGHT**

The units used for measuring weight are kjilogram (kg) and gram (g).

1000 gram = 1kg

1000kg = 1 ton

EXAMPLE1

Change to kilogram

2000g to kilogram

1000g = 1kg

2000g = m

Cross multiply

1000 × m = 2000 x 1

1000m = 2000

m = 2000 = 2kg

**1000**

EXAMPLE 2

Change 5kg to grams

Solution

To change from kg to grams, multiply by 1000

5kg = 5 x 1000

= 5000 grams

EXERCISE

Change the following to kilograms:

1. 2000g
2. 5000g
3. 3500g
4. 1205g
5. 750g

Change to grams

1. 6.5 kg
2. 0.5kg
3. 4.298kg
4. 8.765kg
5. 13.020kg
6. 0.07kg