Dear Parents / Students

Due to the unprecedented situation, Knowledgeplus Training center is mobilized and will keep accompanying and supporting our students through this difficult time. Our Staff will be continuously, sending notes and exercises on a weekly basis through what's app and email. Students are requested to copy the notes and do the exercises on their copybooks. The answers to the questions below will be made available on our website on knowledgeplus.mu/support.php. Please note that these are extra work and notes that we are providing our students and all classes will be replaced during the winter vacation. We thank you for your trust and are convinced that, together, we will overcome these troubled times.

Knowledgeplus Training Center

Mathematics

Garde 8

Week 4

Notes and Exercise

Note:(All the Notes, Examples and Exercise are on the photos and Note:(Please copy all the Notes, Examples and Exercises on your copy book).

Mathematics Grade 8 week 4
Chapter 4 Rate and Proportion

Rate and Proportion

Rate and Proportion are commonly used in our everyday life. Examples includes the exchange rate, heart rate, speed cooking, construction and scale maps.

Rate

Rate is used to compare two quantities with different units. It shows how a quantity changes with respect to another quantity. For example, apples are on sales at 3 for Rs 10, tomatoes are sold at Rs 45 per kg or a worker earns Rs 100 per ~~hours~~ hour.

Example1
A bus cover a distance of 10km using 8 litres of fuel. Calculate the rate at which the bus consumes fuel. ~~rate~~

Solution
8L are used to cover 10 km
1L is used to cover $\frac{10}{8}$ km = 1.25 km

Hence, the rate at which the bus consumes fuel is 1.25 km/L

Example 2

Jessma, a clerk typist, can type 150 words in 3 minutes.

(a) Find her typing rate

(b) Find how long she will rate to type a document of 2800 words.

Solution

(a) 3 minutes $\longrightarrow$ 150 words

1 minutes $\longrightarrow$ $\frac{150}{3}$ words = 50 words

Thus, her typing rate is 50 words per minute or 50 words/min

(b) Typing rate = 50 words/min

50 words $\longrightarrow$ 1 minute

1 words $\longrightarrow$ $\frac{1}{50}$ minute

2800 words $\longrightarrow$ $\left(\frac{1}{50} \times 2800\right)$ minutes

$= 56$ minutes

∴ she will take 56 minutes to type 2800 words.

Exercise 1

1. Sibella can type 840 words in 12 minutes. What is her typing rate?

2. Perranen is paid Rs 6080 for 8 hours of work. What is his hourly rate of pay?

3. Didier can travel 15 km with 1 litre of petrol. How many litres of petrol to travel 240 km?

4. In a competition Chow scored 72 points in 9 games. Find his score per games.

5. Abishek drove 560 km in 4 hours. Find the distance he covered per hour.

6. Ajay needs to put 42 chairs in 6 rooms
   (a) How many chairs can each room contain?
   (b) In how many rooms can he put 98 chairs.

Compound units

A compound unit is one that has two or more different types of measurement, for e.g, 1cm/h, Rs/1kg

Conversion of compound units

Example

Convert Rs 60/1kg to conts/g

Solution

1kg costs Rs 60

1000 g cost (60×100) conts

1g costs $\frac{60 \times 100}{1000}$ conts = 6 cont

So ~~Rs 60/1kg~~ Rs 60/1kg is 6 cont/g

We first convert 1kg into g and Rs into conts. We then find the unit rate for 1g.

Example

If a car is travelling at 97.2 1cm/h on the motorway, find its speed in m/s

Solution

In 1hour the car travels 97.2 1cm

In 3600s, the car travel (97.2×1000)m

In 1s, the car travels $\frac{97.2 \times 1000}{3600}$ m

$= 27$ m

1 hr = 60 min

60 min = 3600 s

1 min = 60 s

Example
Convert 15 m/s to km/h
Solution
In 1s, a distance of 15 m is covered
In 3600s, a distance of (15×3600) m is covered
In 1h, a distance of $\frac{15 \times 3600}{1000}$ km
$= 54$ km is covered
Hence, 15 m/s = 54 km/h

Exercise
1. Convert the following
(a) 18 km/h to m/s
(b) 0.5 km/h to m/s
(c) Rs 24/kg to cents/g
(d) 210 m/min to mm/s
(e) 0.3 km/min to cm/s

2. A plane is flying at 720 km/h. Find its speed in m/s

3. Ismael runs a distance of 5100 m in 30 minutes. Find his speed in km/h.

4. A tank is being filled at a rate of 4 L/min
(a) Find the rate in mL/h
(b) If the tank is filled in 0.8h, find its capacity in litres.