Unit 8 · Unitary Method

HARDER PRACTICE QUESTIONS

Full marks 35

Write your answers on separate paper. Show your working. Before you work, ask whether the two quantities change in direct variation, in indirect variation or neither, and check that your answer moves the right way. The amounts on this sheet are made up for the problems.

1 Spot the errors [4]

Shreya worked out these four. Each answer is wrong. Find the right answer, and say what went wrong.

i. 3 pens cost Rs 75, so 1 pen costs $3 \div 75 =$ Rs 0.04.

ii. 8 workers take 15 days to build a wall, so 12 workers take $\frac{15 \times 12}{8} = 22.5$ days.

iii. At 30 km an hour a trip takes 4 hours, so at 60 km an hour it takes 8 hours.

iv. 5 people finish a job in 12 days, so 1 person finishes it in $12 \div 5 = 2.4$ days.

2 Which way? [4]

Say whether each pair is in direct variation, indirect variation or neither. Give a reason.

a. The number of bus tickets sold for a trip and the money taken, at Rs 450 a ticket.

b. The speed of a bus and the time it takes from Kathmandu to Pokhara.

c. The side of a square and its area.

d. The number of children sharing 120 laddus equally and the laddus each one gets.

3 The printing press [4]

A printing press prints 1,440 copies of a newspaper in 40 minutes.

i. How many copies does it print in one minute?

ii. How many copies does it print in 2 hours 15 minutes?

iii. How long does it take to print 9,000 copies? Give your answer in hours and minutes.

iv. A second press, just as fast, starts at the same time. How long do the two take to print the 9,000 copies together?

4 Fodder for the cows [4]

Gyanu, a farmer in Dang, has enough fodder for her 18 cows for 20 days. After 5 days she sells 9 of the cows.

i. How many cow-days of fodder did she have at the start? (One cow-day is the fodder one cow eats in a day.)

ii. How many cow-days are left after the first 5 days?

iii. For how many more days does the fodder last the cows she kept?

iv. Suppose instead that after 5 days she had bought 6 more cows. For how many more whole days would the fodder last?

5 The momo stall [4]

Pasang's momo stall uses 1.5 kg of flour for 120 momos. A plate has 10 momos, and flour costs Rs 80 a kilogram.

i. How much flour does she need for 200 momos?

ii. How many plates of momos can she make from 4 kg of flour?

iii. How much flour goes into one plate, and what does it cost?

6 Building a wall [4]

6 masons can build a wall in 10 days, all working at the same speed.

i. Copy and complete the table.

Masons	6	4	12	……
Days	10	……	……	3

ii. The wall must be finished in 7 days. How many masons are needed? Why is the answer not the one the division gives?

7 The best buy [4]

Anisha sees three packets of the same tea: 500 g for Rs 360, 200 g for Rs 150 and 1 kg for Rs 740.

i. Find the price of 100 g in each packet.

ii. Which packet is the best buy? How much less would a kilogram cost in it than in the dearest one?

8 Make your own [3]

i. Write a question in direct variation in which the price of one thing is Rs 45, and solve it.

ii. Write a question in indirect variation about people and days in which the job is 36 person-days, and solve it.

iii. Name two quantities, not on this sheet, that both go up together but are not in direct variation.

9 Think: where the method breaks [4]

A tailor stitches a kurta in 3 hours. Bishal says, “Then 3 tailors stitch one kurta in 1 hour, and 180 tailors stitch it in 1 minute.”

i. What does the unitary method give for 180 tailors?

ii. Why is that not true?

iii. 4 singers take 5 minutes to sing a song together. How long do 8 singers take to sing it? Is this direct variation, indirect variation or neither?

iv. Write what the unitary method takes for granted about the people doing a job.