	PHRASE
Inverse	1. The amount of water to the space that water did not occupy in a particular container.
Direct	2. The area of the wall to the amount of paint used to cover it.
Inverse	3. The time spent walking to the rate at which the person walks.
Direct	4. The time a teacher spends checking papers to the number of students.
Inverse	5. The age of a used car to its resale value.
Direct	6. The amount of money raised in a concert to the number of tickets sold.
Direct	7. The distance an airplane flies to the time travelling.

Inverse variation

CHAPTER

13

DIRECT AND INVERSE PROPORTIONS

Tick [✓] the correct answer

The fourth proportion of the following is

3 : 6 :: 10 :

(a) 20 [✓] (b) 50 [ ]

(c) 30 [ ] (d) 100 [ ]

Fill in the blanks

1. Ratio between distance and time is [Speed]
2. If the number of books purchased more, then the price will be [more]
3. If more workers employed for a job, their the time taken by them will be [less]

Match the following

Column I	Column II
(a) x: 6 15 9 / y: 2 5 3	(i) Inverse ratio 4
(b) Ratio between change in weight and height	(ii) Inverse ratio 3
(c) Persons 10 20 / Days 8 x	(iii) not proportional 2
(d) Population of a city and area of land per person	(iv) direct ratio 1

more Population
less area for person

Write T for true and F for false in the following statements

(a) Ratio between distance covered and time taken is inverse proportion [False]

(b) Ratio between a quantity and its price is direct proportion [True]

(c) If $\frac{x_1}{x_2} = \frac{y_2}{y_1}$ then x and y are in direct [False]
Inverse
proportion

ACTIVITY

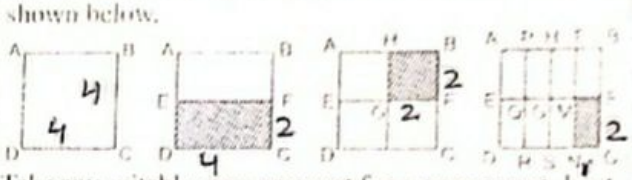
27 students are standing in 3 rows and 9 columns as given below

Make such more arrangements and complete the following table

Row →	3	9	27
Column →	9	9×3=27	27×3=81

DISCUSSION

You are given a square paper sheet and its folds as shown below.



Take any suitable measurement for square paper sheet. Discuss with your classmates and complete the table and compare the ratio of parts and their perimeters.

Perimeter	Perimeter of ABCD	Perimeter of EDCF	Perimeter of BFGH	Perimeter of MNCF
	16	8	4	2

WORKSHEET

Direct

$\frac{x_1}{y_1} \times \frac{x_2}{y_2}$

$x_1y_2 = x_2y_1$

QUESTIONS	SOLUTIONS
1. Ram bought 20 notebooks for ₹ 300. How many books can he purchase in ₹ 400 ?	1. No of notebaks 20 x Cost in ₹ 300 400 Direct $\frac{20}{300} = \frac{x}{400}$ $x = \frac{20 \times 400}{300} = \frac{80}{3} = ₹ 26.66$
Inverse $\frac{x_1}{y_1} = \frac{x_2}{y_2}$ $x_1y_1 = x_2y_2$ 2. 15 persons do a piece of work in 10 days. If 10 persons are more employed alongwith these persons then calculate the time taken by them. Persons 15 15+10=25 Days 10 ?	2. Inverse $\frac{15}{25} \times 10 = 25 \times x$ $x = \frac{15 \times 10}{25} = 6$ days.
3. A person goes from Delhi and reaches to Mumbai in 15 hours with the speed of 80 km/h by a train. How much time is taken if the speed of train will be 100 km/h? Inverse	3.
Direct 4. A typist can type 70 words in 1 minute. Then how many words can he type in $1\frac{1}{2}$ minutes $= \frac{3}{2}$	4.
5. Take different radii of circles and write their circumferences and compare the result :	5. $C = 2\pi r$ $= 2 \times \frac{22}{7} \times 7$ cm $= 44$ cm $C = 2 \times \frac{22}{7} \times 14$ cm $= 88$ cm $C = 2 \times \frac{22}{7} \times 21$ cm $= 132$ cm

	Circle 1	Circle 2	Circle 3
Radius of circle	7 cm	14	21
Circumference	44 cm	88	132