



GRADE -8

Work sheet - MATHEMATICS

2024-'25

CHAPTER -17

DIRECT AND INVERSE VARIATION

Name :

Date:.....

1. If the weight of 12 sheets of thick paper is 40 grams, how many sheets of the same paper would

weigh 2500 grams?

- A. 750 B. 800 C C. 850 D. 950

2.The scale of a map is given as 1:300. Two cities are 4 km apart on the map. The actual distance

between them is: A. 1000 km B. 1100 km C. 1200 km D. 1300 km

3.If 12 workers can build a wall in 50 hours, how many workers will be required to do the same

work in 40 hours?

- A. 10 B. 13 C. 14 D. 15

4. A man walks 20 km in 5 hours. How much time will it take for him to walk 32 km?

- A. 3 hours B. 4 hours C. 6 hours D. 8 hours

5. y is directly proportional to x , and $y = 24$ when $x = 4$. What is the value of y when $x = 3$?

- a. 18 b. 20 c. 23 d. 43

6. The circumference (C cm) of a circle is directly proportional to its diameter (d cm). The circumference of a circle of diameter 3.5 cm is 11 cm What is the circumference of a circle of diameter 4.2 cm?

- a. 9.17 b. 11.7 c. 14 d. 13.2

7. Which of the following vary inversely with each other?

- a. speed and distance covered. b. distance covered and taxi fare.

c. distance travelled and time taken. d. speed and time taken.

8. 100 persons had food provision for 24 days. If 20 persons left the place, the provision will last for how many days?

a. 30 b. 120 c. 40 d. 965

9. Five people complete 10 jobs in 20 minutes. How many minutes will 30 people take to complete 30 similar jobs?

a. 40 b. 180 c. 10 d. 360

10. A boy runs 1 km in 5 minutes. How long will it take to run 600 m?

a. 2 minutes b. 3 minutes c. 4 minutes d. 6 minutes

11. 8 grams of sandalwood cost ₹ 400. What will 54 gram sandalwood cost?

a. ₹ 200 b. ₹ 100 c. ₹ 2700 d. ₹ 800

12. If x and y vary inversely with respect to each other such that x = 15 when y = 6. Find the value of x when y = 15.

a. 2 b. 4 c. 5 d. 6

13. Both x and y are in direct proportion, then $\frac{1}{y}$ and $\frac{1}{x}$ are in:

a. in indirect proportion. b. in inverse proportion.

c. neither in direct nor in inverse proportion. d. sometimes in direct and sometimes in inverse proportion

SHORT ANSWER TYPE QUESTION:

1. A car travels 14 km in 25 minutes. Find out how far the car can travel in 5 hours if the speed remains the same?

2. If 15 workers can finish a task in 42 hours, calculate the number of workers required to complete the same task in 30 hours.

3. If 3 kg of sugar contains 9×10^8 crystals. How many sugar crystals are there in 4 kg of sugar?

4. The cost of 5 metres of cloth is ₹ 210. Tabulate the cost of 2, 4, 10 and 13 metres of cloth of the same type.

5. Mohit deposited a sum of ₹ 12000 in a Bank at a certain rate of interest for 2 years and earned an interest of ₹ 900. How much interest would be earned for a deposit of ₹ 15000 for the same period and at the same rate of interest?
6. A garrison of 120 men has provisions for 30 days. At the end of 5 days, 5 more men joined them. How many days can they sustain on the remaining provision?
7. If two cardboard boxes occupy 500 cubic centimetres space, then how much space is required to keep 200 such boxes?
8. Find the value of x and y if $x : y = 2 : 3$ and $2 : x = 1 : 2$.
9. Ranjith has enough money to buy 75 machines worth Rs. 200 each. How many machines can he buy if he gets a discount of Rs.50 on each machine?
10. A worker is paid Rs. 420 for 2 days work. If his total income of the month is Rs. 1890, For how many days did he work?

LONG ANSWER TYPE QUESTIONS

11. A water tanker can finish a certain journey in 10 hours at the speed of 40 km/hr. By how much should its speed be increased so that it may take only 8 hours to cover the same distance?
12. The amount of extension in the length of the elastic string directly varies as the weight hangs on it. If a weight of 500 gm produces an extension of 3 cm, then what weight would produce an extension of 36 cm. Write the solution in Kg.
13. 1200 children in a hostel had enough food for 28 days. After 4 days, some children were shifted to another hostel. As a result, the food now lasted for 32 days. How many students were shifted?
14. A 5m 60cm high vertical pole casts a shadow which is 3m 20cm long. Find at the same time (i) length of the shadow cast by a different pole which is 10m 50cm high. (ii) height of a pole which casts a shadow 5m long.

CASE BASED QUESTIONS :-

1. Many schools have a recommended students-teacher ratio as 35:1. Next year, the school expects an increase in enrolment by 280 students. (i) How many new teachers will they have to appoint to maintain the students-teacher ratio? (ii) Board members of school XYZ decided to keep the ratio as 30:1. Total how many teachers will be appointed if the strength of the school is 1800? (iii) A school has 15

teachers working. How many more teachers will be needed if the total strength of school is 735 and they want to maintain a ratio of 35:1?

28. Jagmeet has a road map with a scale of 1 cm = 20 km. (i) He drives on a road for 72 km. What would be his distance covered in the map? (ii) Suppose the distance between two places on the map is 3.5 cm, find the exact distance between the two places. (iii) Jagmeet went from place a to b to meet his parents and then b to c to join his office. If the distance between a and b is 4 cm and the distance between b and c is 2 cm on the map, total how much distance is covered by Jagmeet.

