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10 TH MATHS GRAPH (D.V & I.V) WORKSHEET-2025

GRAPH OF VARIATION

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1. Varshika drew 6 circles with different sizes. Draw a graph for the relationship between the **diameter and circumference** (approximately related) of each circle as shown in the table and use it to find the circumference of a circle when its **diameter is 6 cm.**

Diameter (x) cm	1	2	3	4	5
Circumference (y) cm	3.1	6.2	9.3	12.4	15.5

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

2. A bus is travelling at a uniform speed of **50 km / hr**. Draw the **distance time graph** and hence find
(i) The **constant of variation**.
(ii) How far will it travel in **90 minutes or 1 ½ hrs?.**
(iii)The time required to cover a distance of **300 km** from the graph.

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)
(ii)
(iii)

3. A garment shop announces a flat **50 % discount** on every purchase of items for their customers. Draw the graph for the relation between the **Marked Price and the Discount**. Hence find

(i) The marked price when a customer gets a **discount of ₹ 3250 (from graph).**

(ii) The discount when the **marked price is ₹ 2500.**

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)

(ii)

4. Graph the following **linear function** $y = \frac{1}{2}x$. Identify the constant of variation and verify it with the graph. Also find

(i) y when $x = 9$ and (ii) x when $y = 7.5$.

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)

(ii)

5. A two wheeler parking zone near bus stand charges as below.

Time x (in hours)	4	8	12	24
Amount y (in ₹)	60	120	180	360

Check if the amount charged are in direct variation or in inverse variation to the parking time. Graph the data. Also

(i) Find the amount to be paid when parking **time is 6 hrs**.

(ii) Find the parking duration when the amount **paid is ₹ 150**.

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)

(ii)

6. A Company initially started with **40 workers** to complete the work by **150 days**. Later it decided to fasten up the work increasing the number of workers as shown below.

Number of workers (x)	**40**	**50**	**60**	**75**
Number of days (y)	**150**	**120**	**100**	**80**

(i) Graph the above data and identify the **type of variation**.

(ii) From the graph, find the number of days required to complete the work if the company decides to opt for **120 workers?.**

(iii) If the work has to be completed by **200 days**, how many workers are required?.

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)
(ii)
(iii)

7. **Nishanth** is the winner in a Marathon race **12 km distance**. He ran at the uniform speed of **12 km / hr** and reached the destination in **1 hour**. He was followed by Aradhana, Jeyanth, Sathya and Swetha with their respective speed of **6 km / hr, 4 km / hr, 3 km / hr and 2 km / hr**. And, they covered the distance in **2 hrs, 3 hrs, 4 hrs and 6 hours** respectively.

Draw the Speed- time graph and use it to find time taken to Kaushik with his speed **2.4 km / hr**.

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

8. Draw the graph of $xy = 24, x, y > 0$. Using the graph find,
(i) y when $x = 3$ and (ii) x when $y = 6$.

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)
(ii)

9. The following table shows the data about the number of pipes and the time taken to fill the same tank.

No. of. pipes x	2	3	6	9
Time Taken y (in mins)	45	30	15	10

Draw the graph for the above data and hence

(i) Find the time taken to fill the tank when **five pipes** are used.

(ii) Find the number of pipes when the **time is 9 minutes**.

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)

(ii)

10. A School announces that for a certain competitions, the cash price will be distributed for all the participants equally as show below

No. of. Participants (x)	2	4	6	8	10
Amount for each Participants y (in ₹)	180	90	60	45	36

(i) Find the **constant of variation**.

(ii) Graph the above data and hence, find how will each participants get if the number of **participants are 12.**

Solution:

I. Table

II. Variation:

Scale:

III. Points:

IV. Solution:

(i)

(ii)