

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

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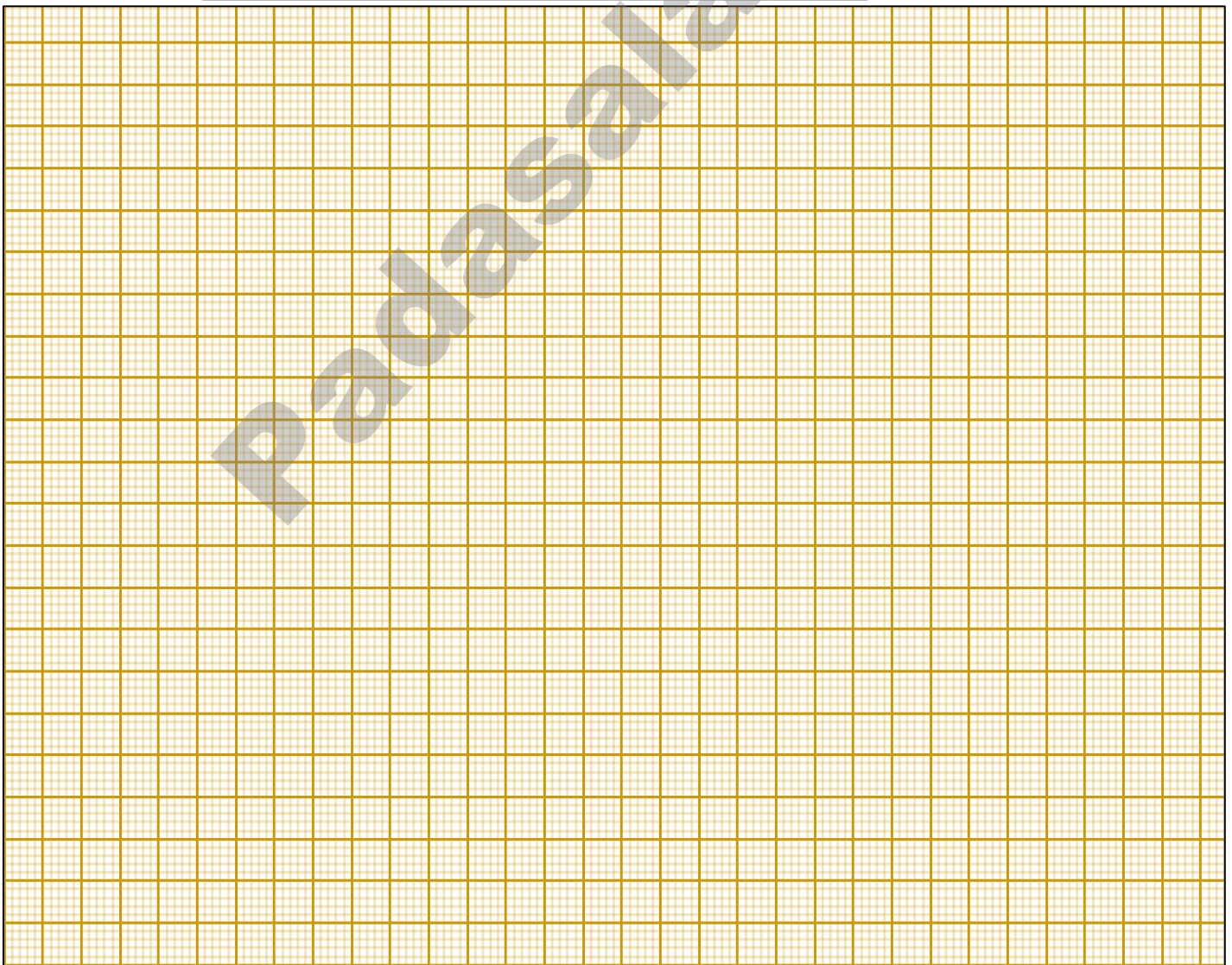
1. **Varshika** drew 6 circles with different sizes. Draw a graph for the relationship between the **diameter and circumference** (approximately related) of each circle as shown in the table and use it to find the circumference of a circle when its **diameter is 6 cm**.

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
- The **constant of variation**.
  - How far will it travel in **90 minutes** or **1 ½ hrs?**.
  - The time required to cover a distance of **300 km** from the graph.

**Solution:**

**I. Table**

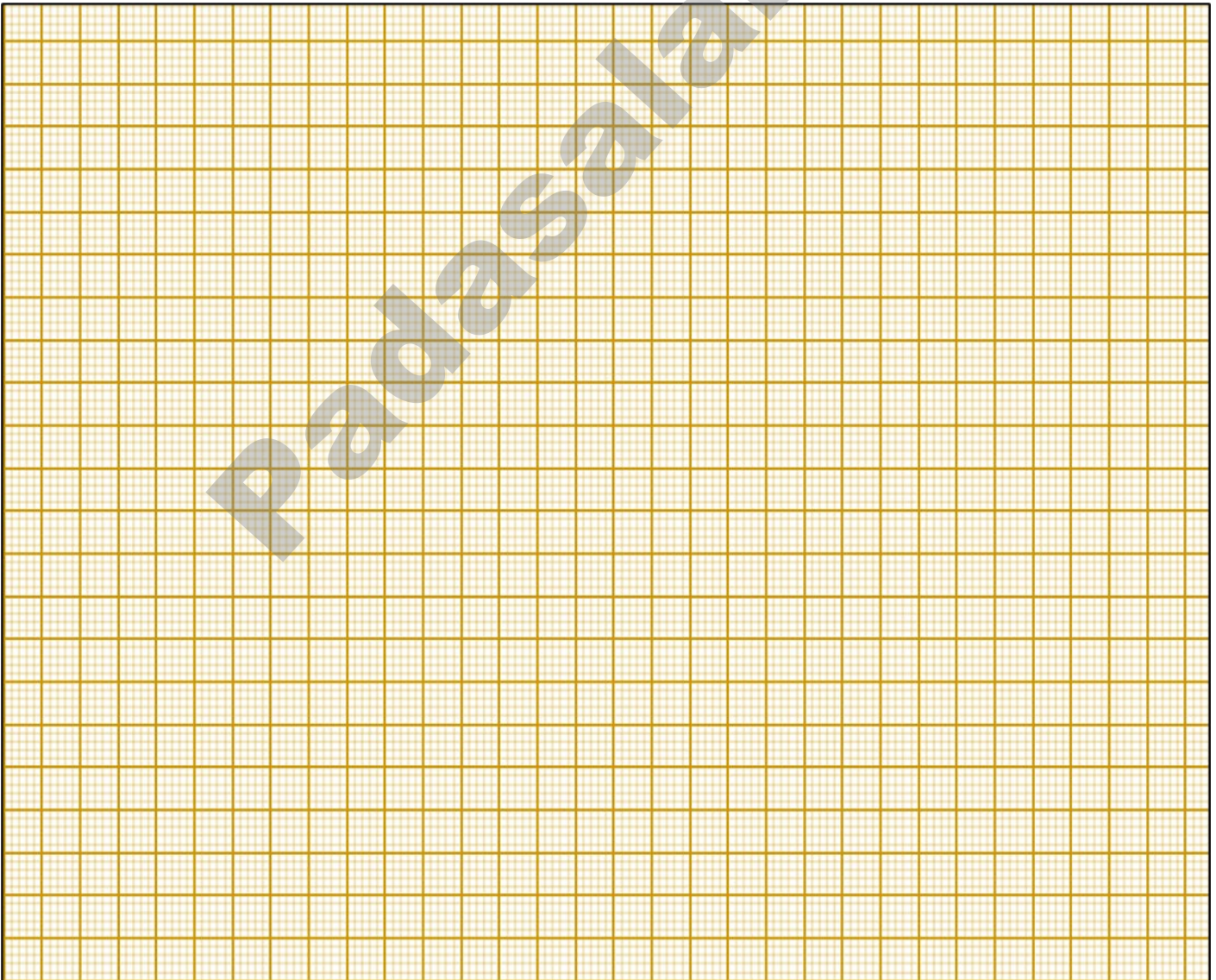

**II. Variation:**

**Scale:**

**III. Points:**

**IV. Solution:**

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- 





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
- The marked price when a customer gets a **discount of ₹ 3250 (from graph)**.
  - The discount when the **marked price is ₹ 2500**.

**Solution:**

**I. Table**


**II. Variation:**

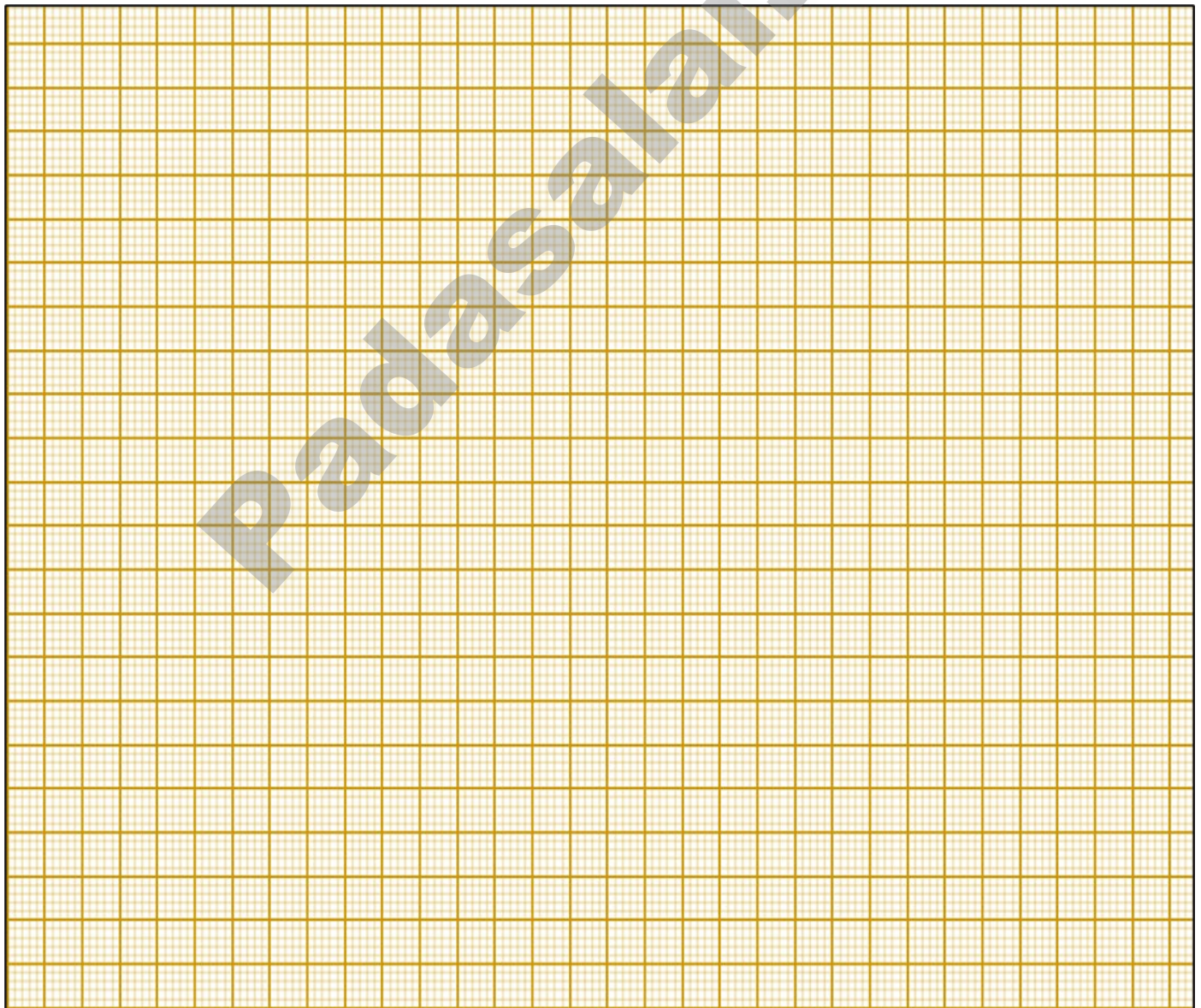
Scale:

**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**

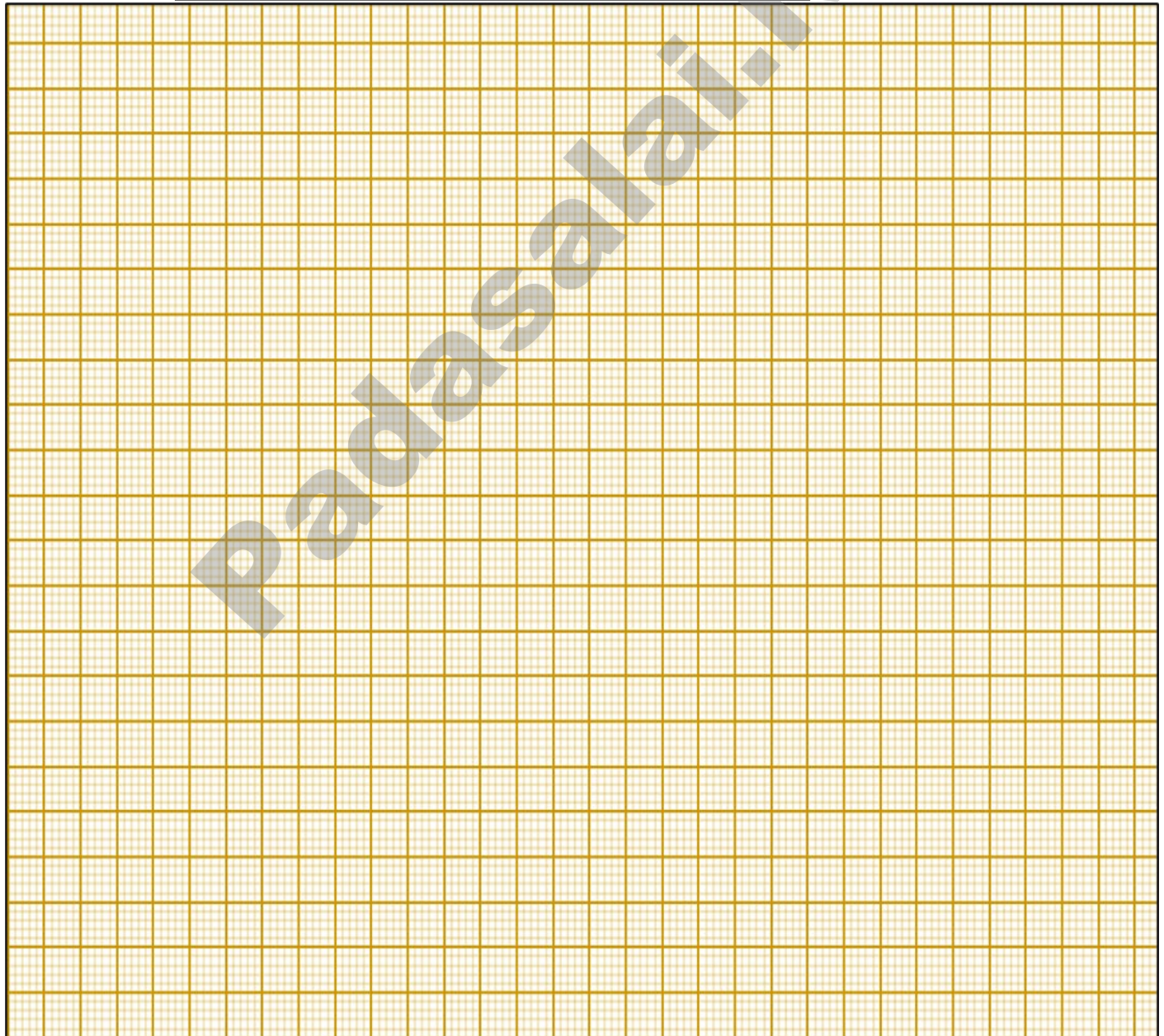

**II. Variation:**

**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

- Find the amount to be paid when parking time is 6 hrs.
- Find the parking duration when the amount paid is ₹ 150.

**Solution:**

**I. Table**


**II. Variation:**

Scale:

**III. Points:**

**IV. Solution:**

- 
-



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.

<b>Number of workers (x)</b>	<b>40</b>	<b>50</b>	<b>60</b>	<b>75</b>
<b>Number of days (y)</b>	<b>150</b>	<b>120</b>	<b>100</b>	<b>80</b>

- (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**

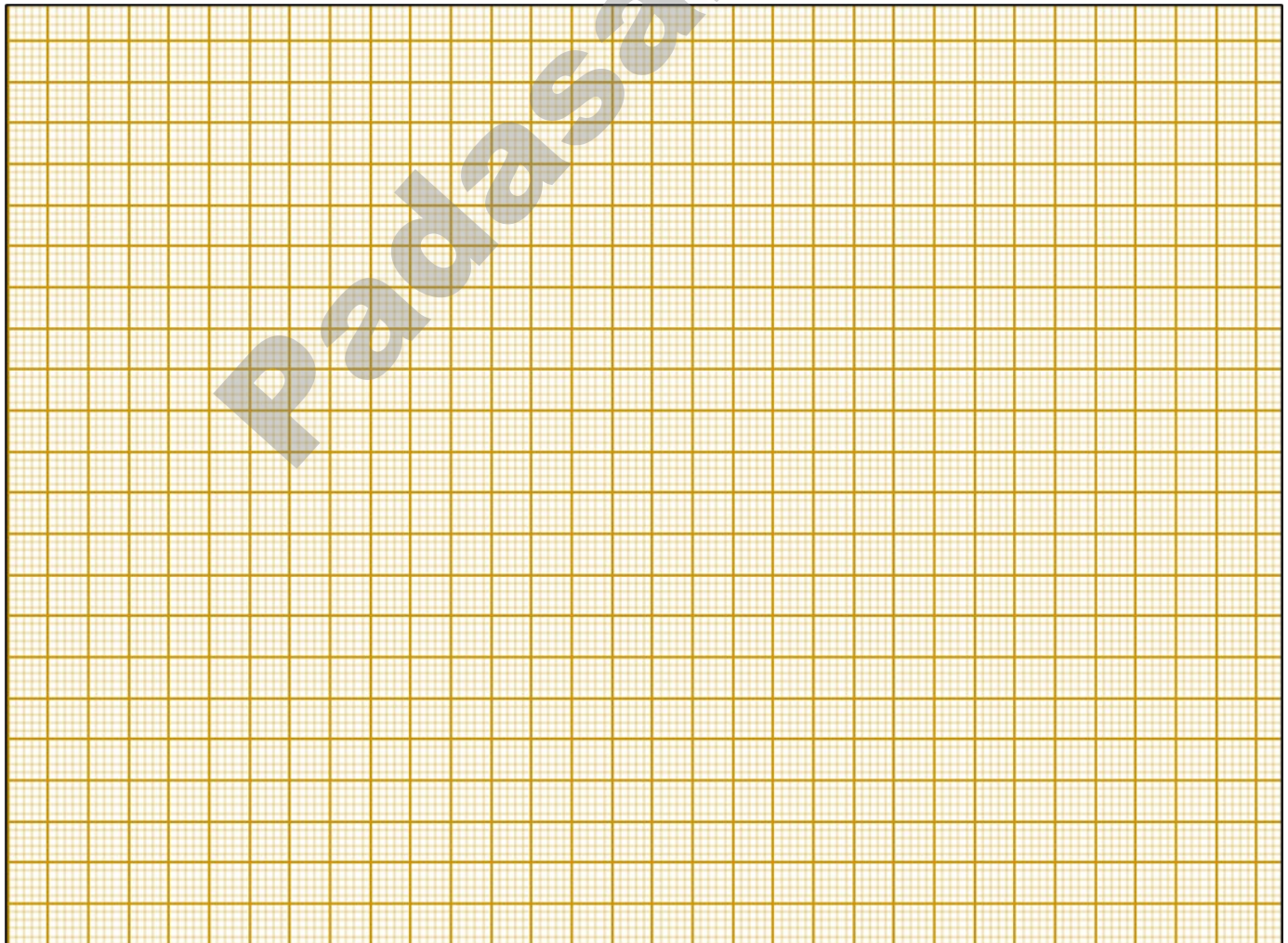

**II. Variation:**

**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:**

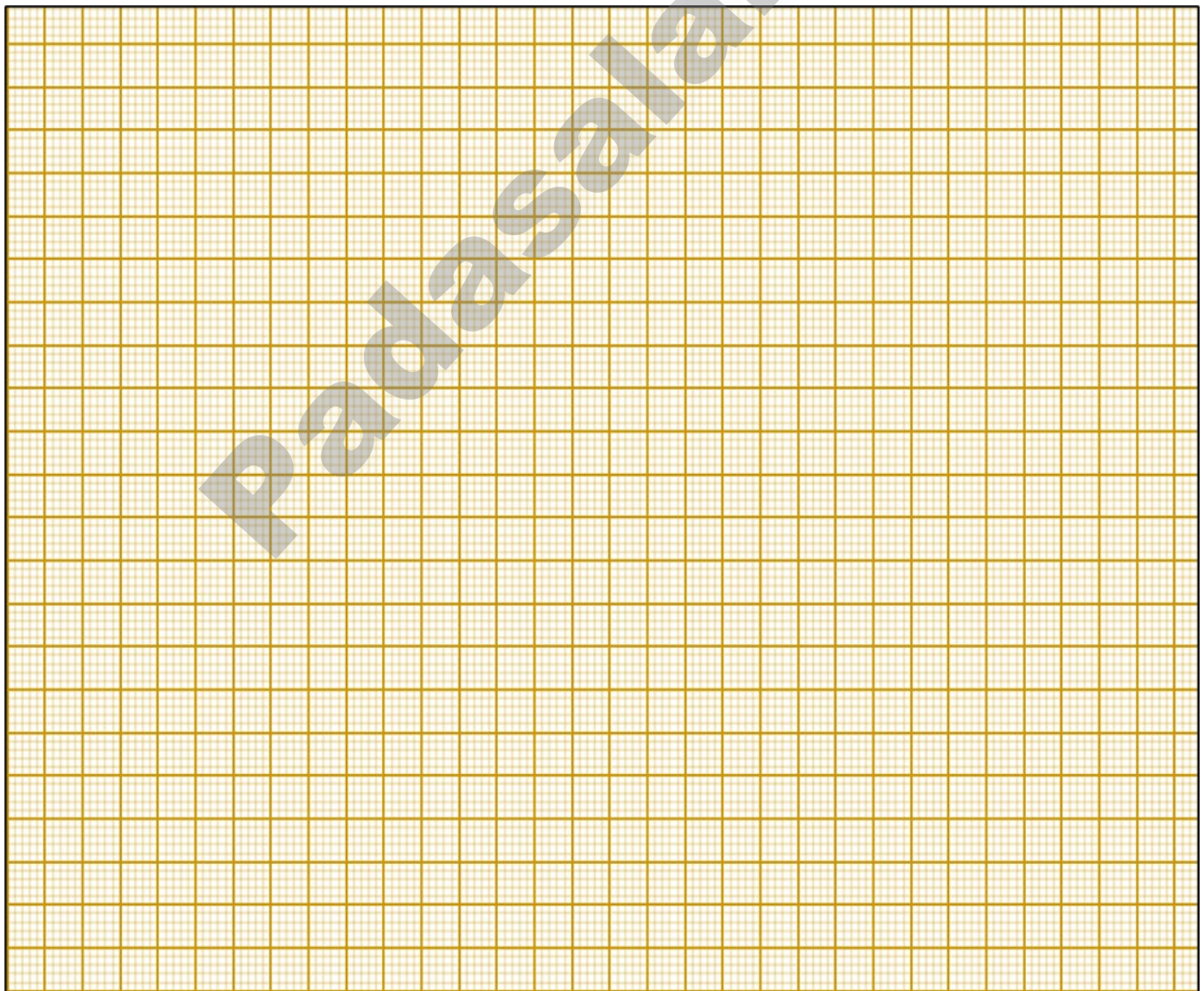
**I. Table**


**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**

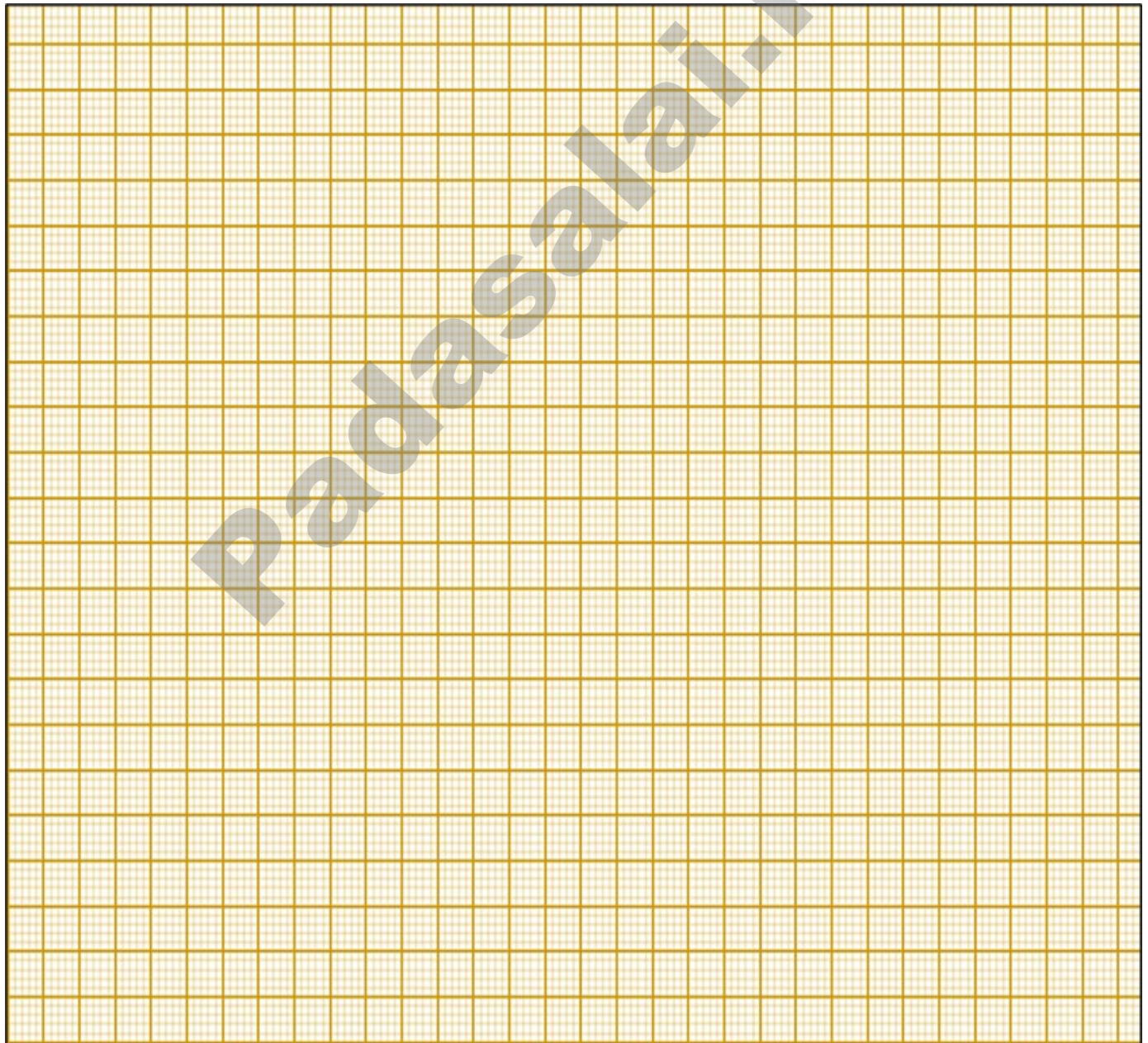

**II. Variation:**

**Scale:**

**III. Points:**

**IV. Solution:**

- (i)  
(ii)



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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**

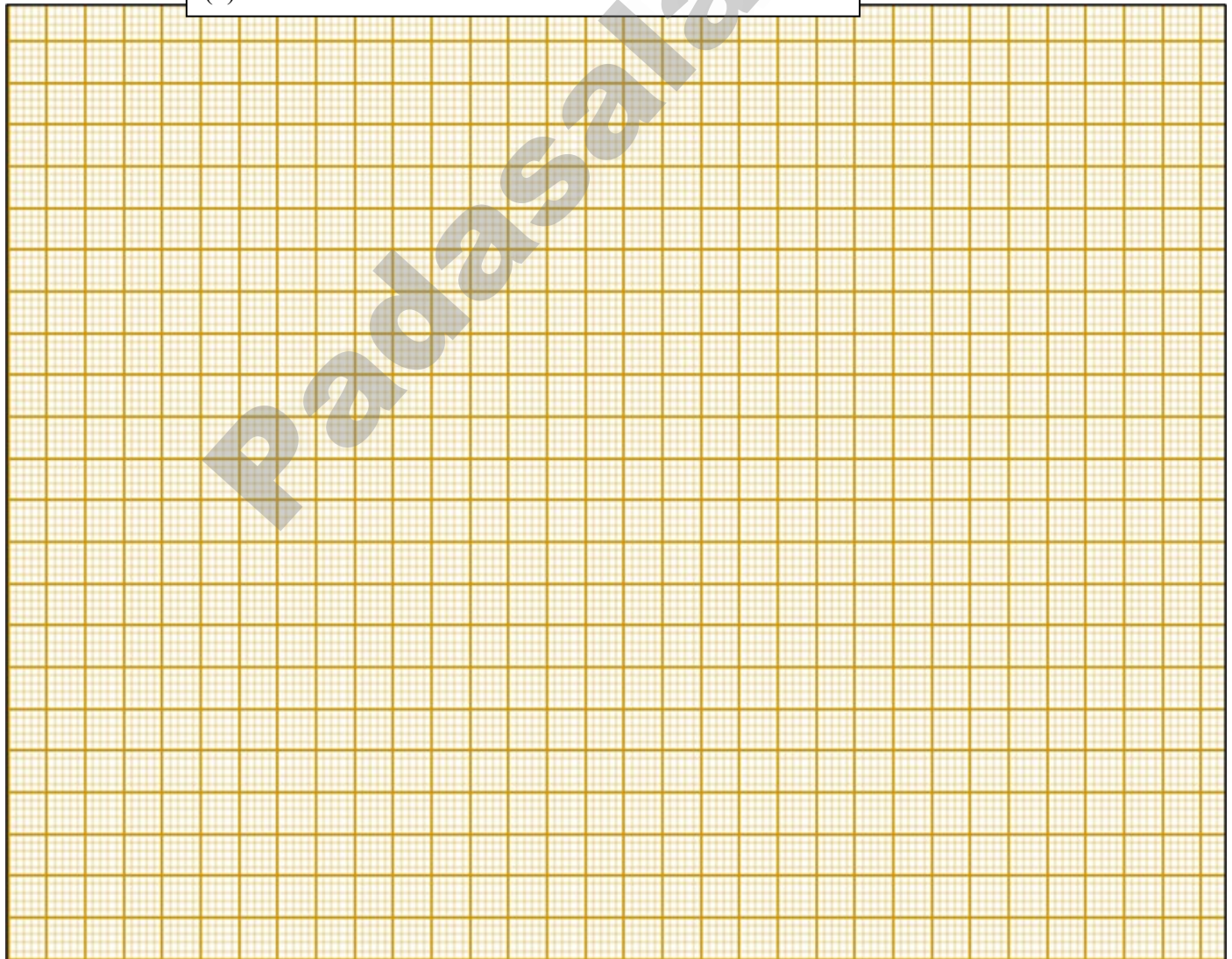

**II. Variation:**

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)

