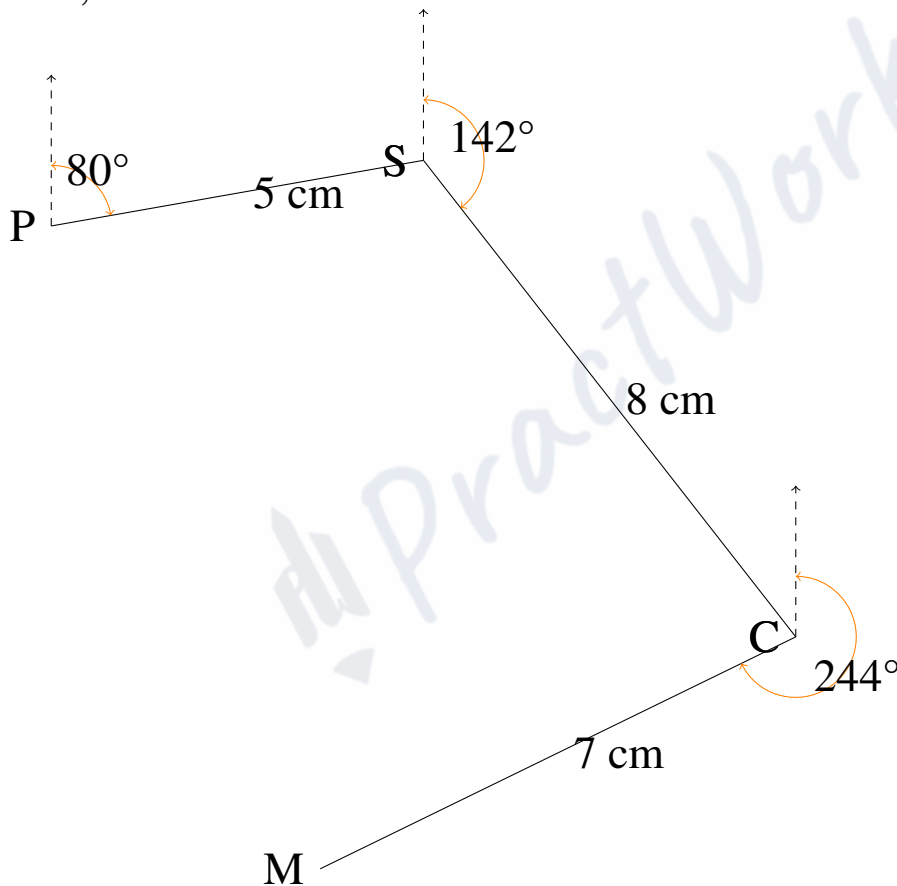
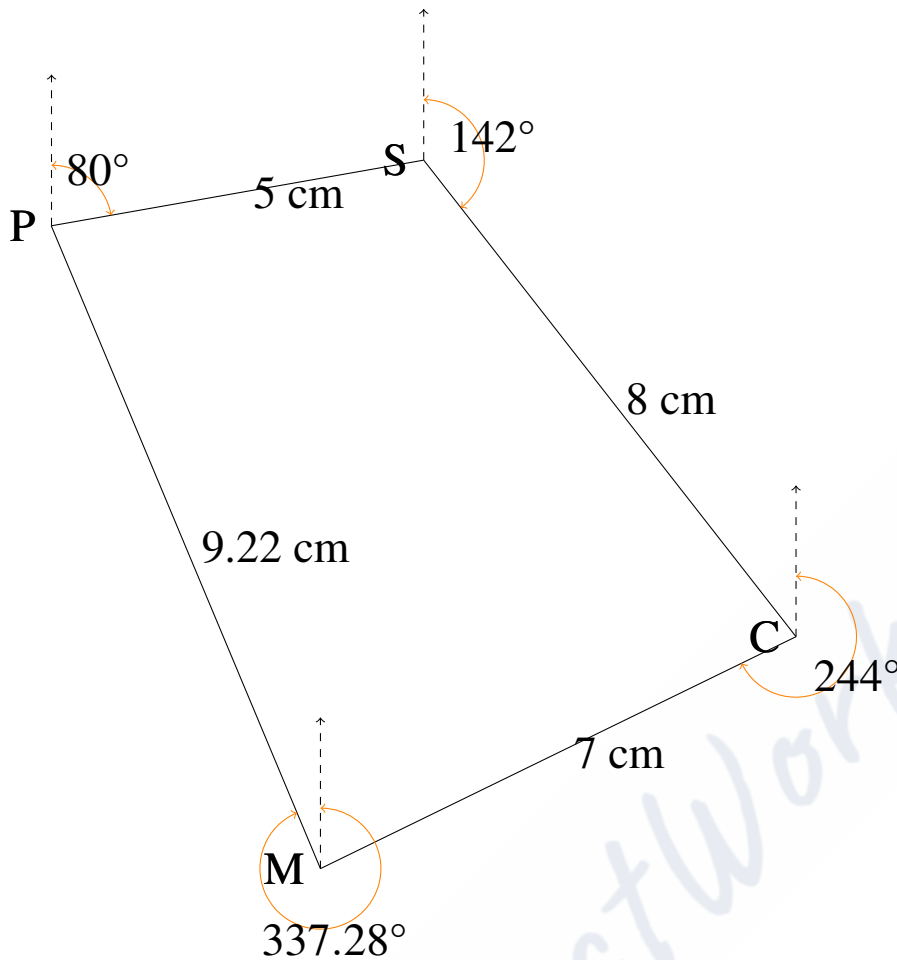


Q1 A ship leaves a port P and sails 500 km on a bearing of 80° to reach an island S. It then leaves the island and sails another 800 km on a bearing of 142° to reach a city C. And then it leaves city C on a bearing of 244° and sails for 24400 km reaching city M. In your drawing, make sure 1cm represents 100km. Find the distance between port P and city M from your drawing and the bearing from M to reach the starting point P.

A1 Below is the bearing drawing from the given information. Scale used, 1cm=100km



Measuring the distance between M and P and the bearing in the diagram, we have:



The distance between port P and city M is: 9.22 cm.

Since 1 cm = 100 km, the actual distance will be $9.22 \times 100 = 922.00000000000001$

The bearing from M to reach P is = 337.28°

Q2 Bhaama and Ravi live close by in the city of Kollam. Ravi lives south of house of Bhaama, 7 km apart. Bhaama walks to a bakery shop at a bearing of 45° for 5 km. Ravi cycles to a medical shop at a bearing of 51° from his house for 5 km. And then he leaves for a training center which is at a distance of 8 km at a bearing of 132° . While he is at the training center, he gets a call from Bhaama to come to bakery shop. If he can cycle at 20 kmph in a straight path towards the bakery shop, calculate the bearing for his travel and the time in minutes (rounded off) it will take to reach Bhaama. Note: Use 1 cm = 1 km as the scale in your

drawings.

A2 Representing,

S - House of Bhaama house

H - House of Ravi house

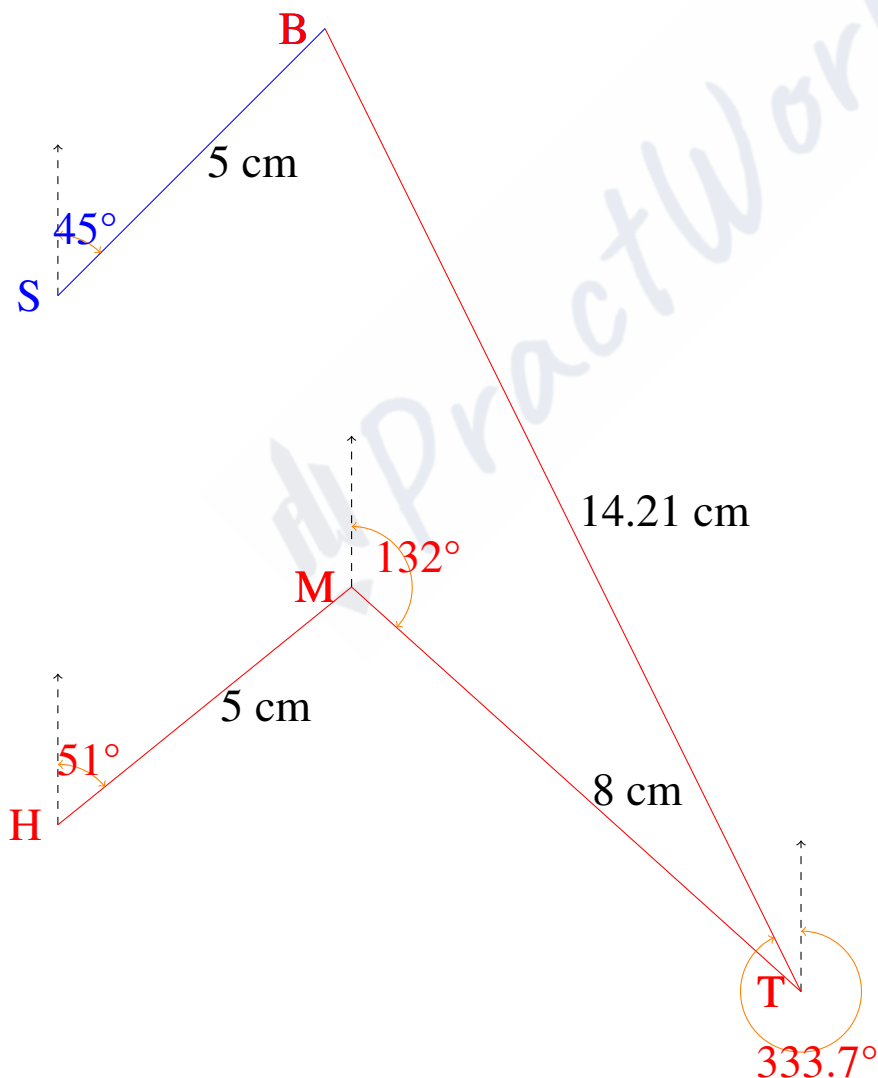
B - Bakery

M - Medical Shop

T - Training center

in the below diagram,

Below is the bearing drawing from the given information. Scale used,
1cm=1km



From the diagram above, the distance between training center T and Bakery point B is 14.21

Since 1cm = 1km, the actual distance will be 14.21 km.

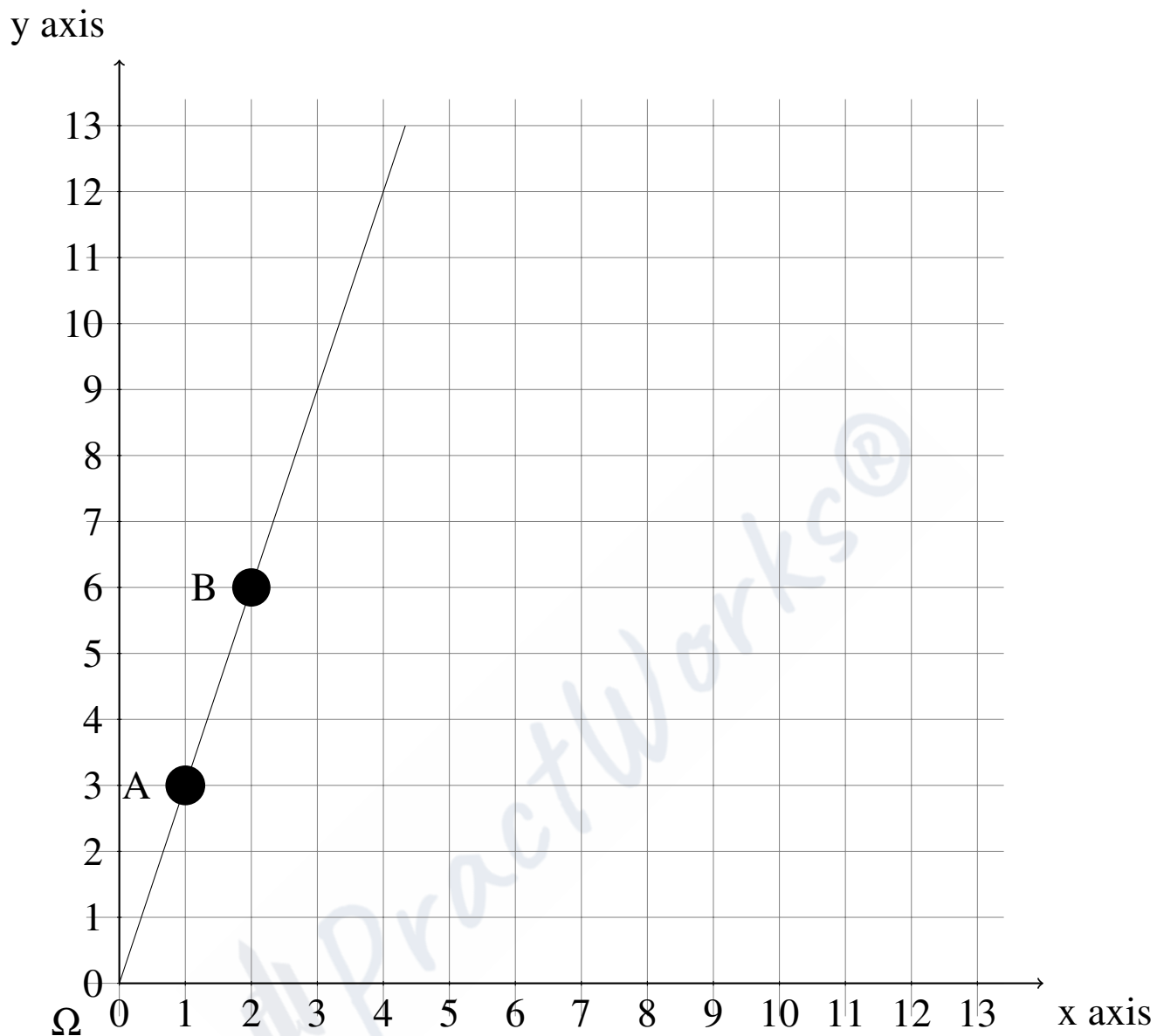
The bearing from T to B to reach Bhaama is = 333.7°

Since Ravi can cycle 20 kmph, he can cover the distance of 14.21 km in

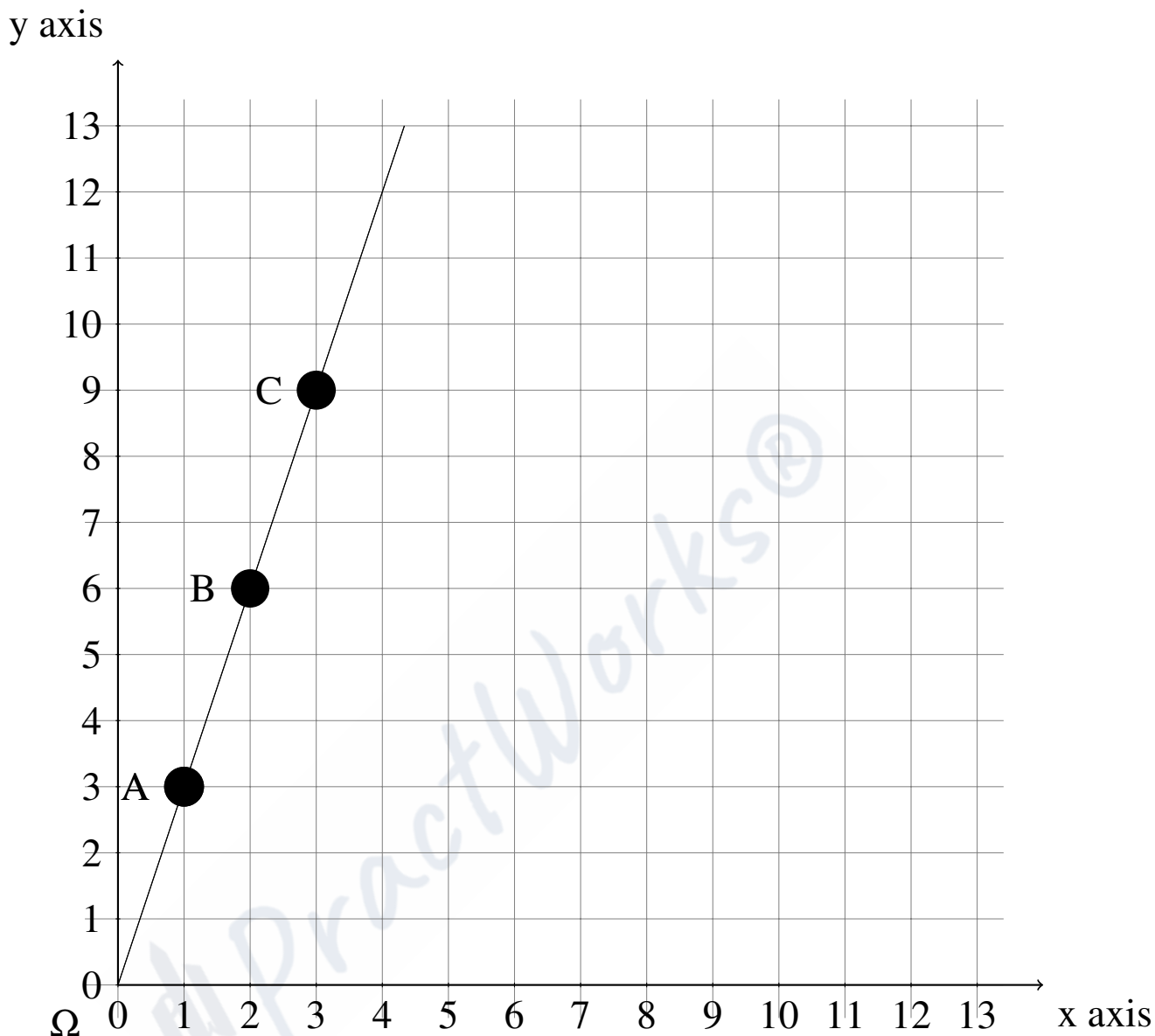
$$\frac{14.21 \times 60}{20} = 42 \text{ minutes}$$

Q3 The diagram below shows the points Ω , A and B.

They are equally spaced on the line. There are further points like C, D and E onwards which are placed at equal space with the distance between them same as A and B.



- 1) Refer to the diagram and place point C on the graph. What are the co-ordinates of C?
- 2) Write the coordinate of point H



A3

Coordinates of C are (3, 9)

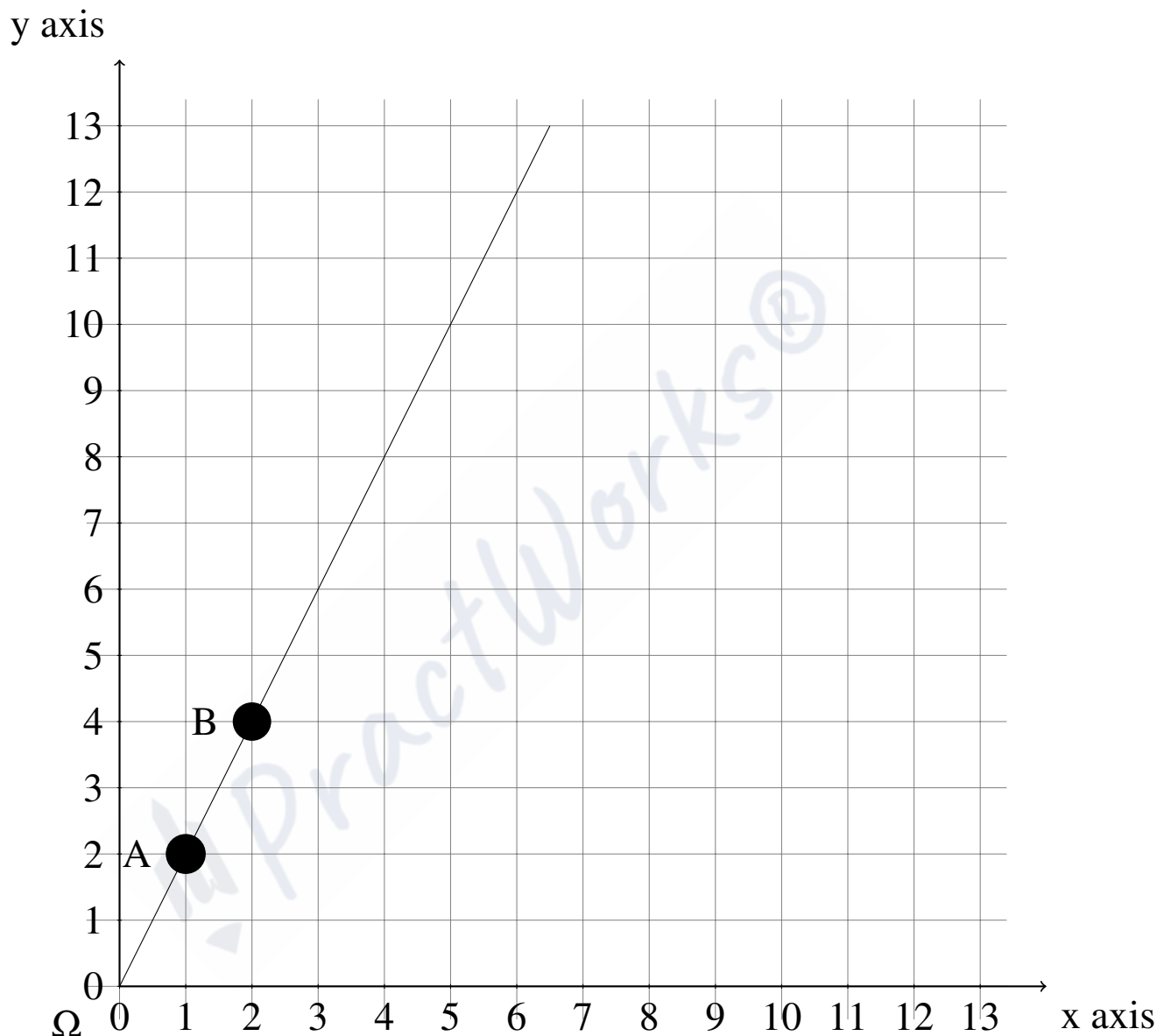
For point H, the number of spacing from origin is 8 and hence the co-ordinates are: (8, 24)

Q4

Ω is the point (0,0). A line passes through A, (1, 2) and Ω . Point B is the next point on the line after point A and the distance between A and B on the line is same as the distance between A and Ω .

1. Find the coordinates of point B.
2. What are the co-ordinates of point H.

3. Write a generalized expression for the co-ordinates of the n^{th} letter of the alphabet along the same line.



A4

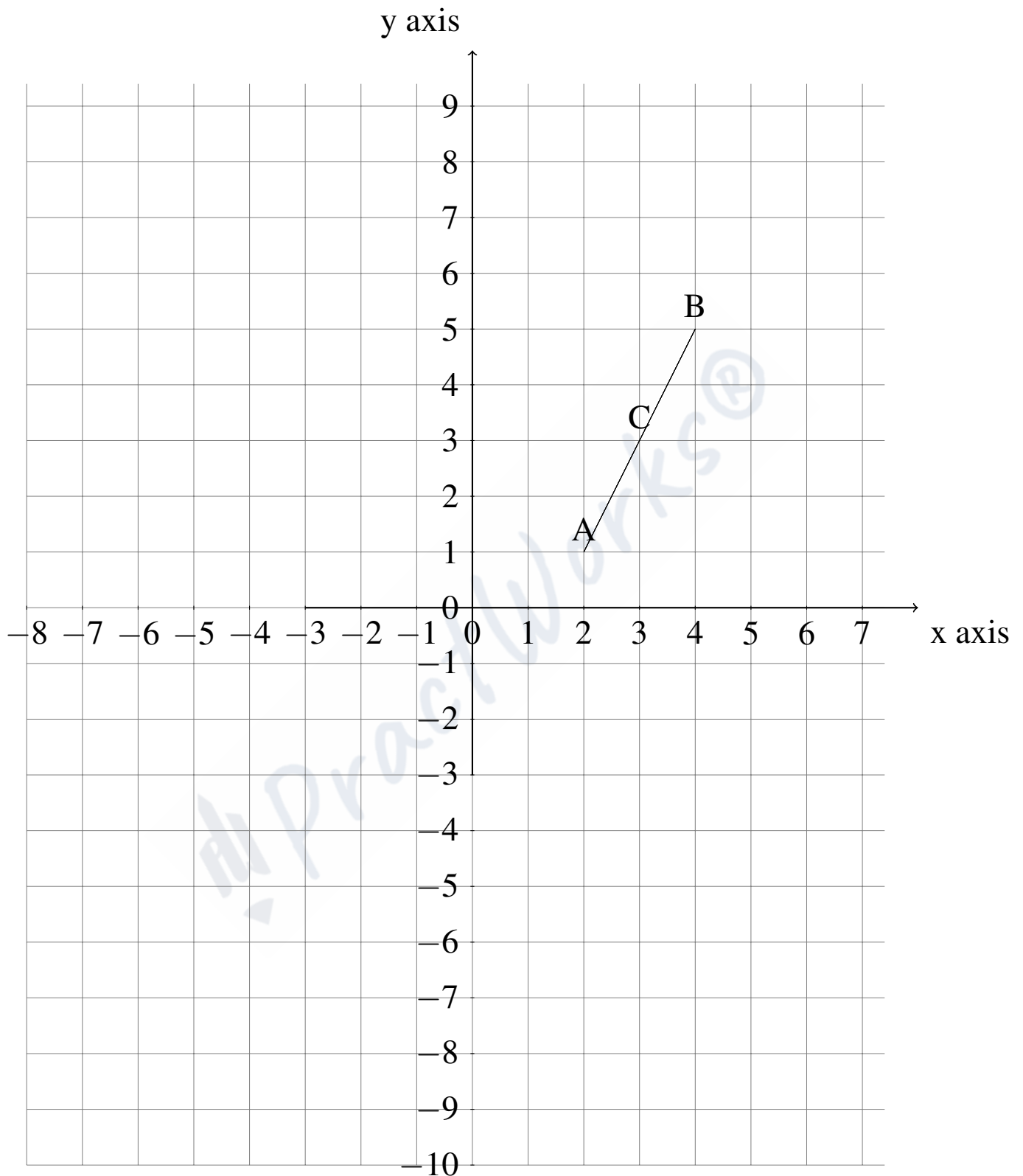
1. The line passes through (0,0) and (1, 2). From the graph above, with the same distance on the line, we can mark point B. The co-ordinates of point B are (2, 4).
2. For point H, the number of spacing from origin is 8 and hence the co-ordinates are multiple of point A: (8, 16)
3. The generalized expression for the co-ordinates of the n^{th} expression =

$$x = 1 \times n = 1n$$

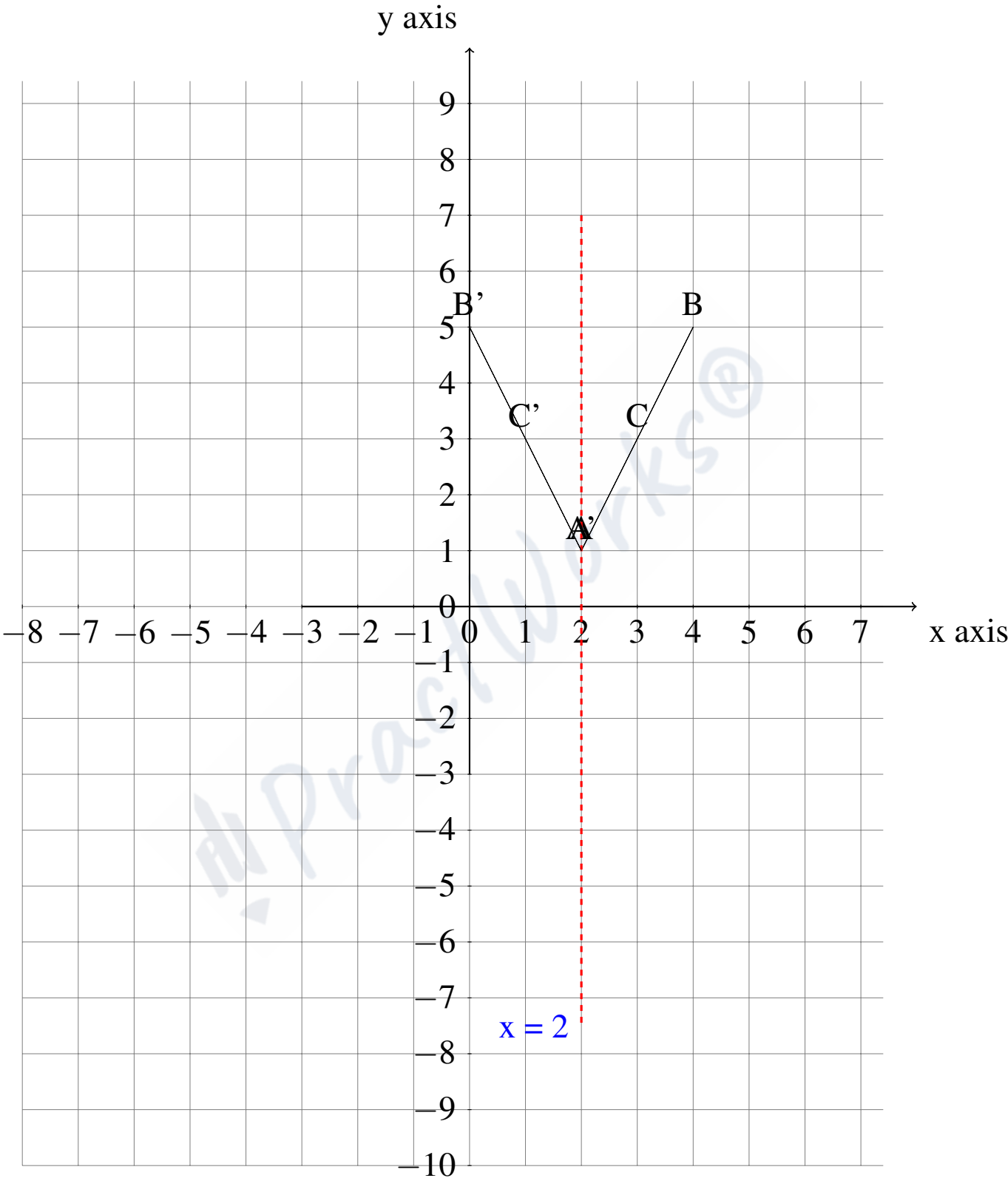
$$y = 2 \times n = 2n$$

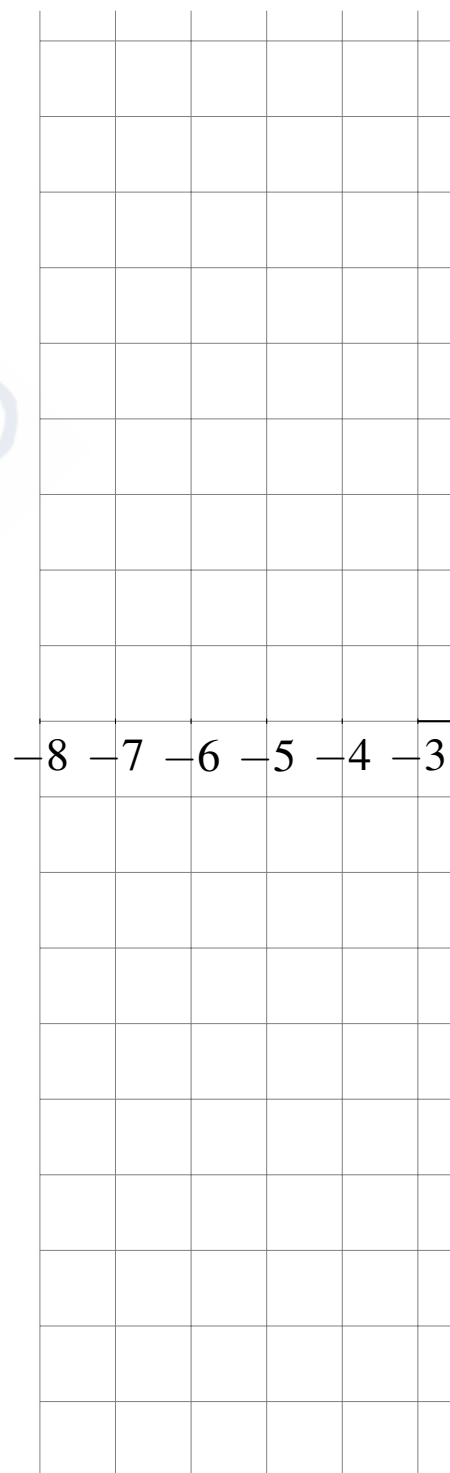
$$i.e(n, 2n)$$

Q5 $\triangle ABC$ is shown in the below diagram. Draw the reflection of the triangle in the line $x = 2$



A5 Here is the reflection of the triangle $\triangle ABC$





Q6 Translate $\triangle ABC$ using the column vector: $\begin{bmatrix} -7, \\ 3 \end{bmatrix}$

A6 Translated the $\triangle ABC$ using the given column vector: $\begin{bmatrix} -7, \\ 3 \end{bmatrix}$

