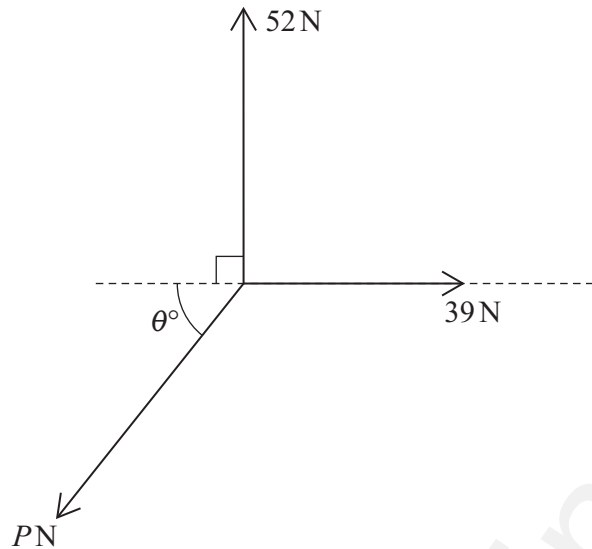


[5]

pastpaperbengali

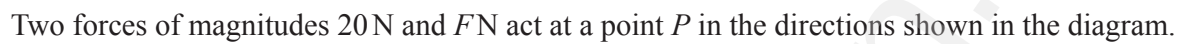


Coplanar forces of magnitudes 52 N, 39 N and P N act at a point in the directions shown in the diagram. The system is in equilibrium.

Find the values of P and θ .

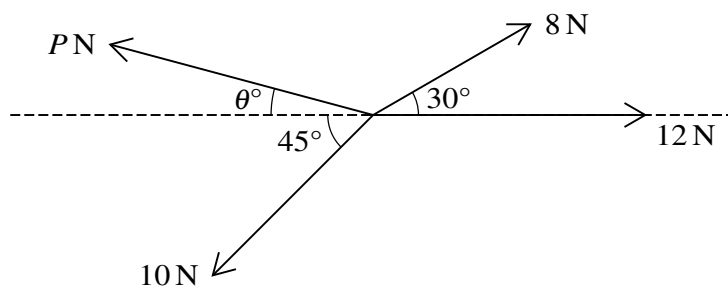
[4]

This image shows a blank sheet of white paper with horizontal dotted lines for writing. A large, light gray watermark reading "pastpaperpen" is diagonally across the page. The watermark is oriented from the bottom-left towards the top-right. There are approximately 20 horizontal dotted lines visible on the page.



- [illegible]

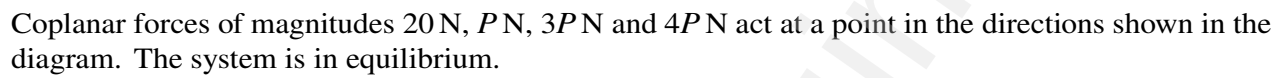
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- This image shows a blank sheet of white paper designed for handwriting practice. It features ten horizontal rows, each defined by two parallel dotted lines. A large, light gray watermark with the word "Pastpaper" is oriented diagonally from the bottom-left towards the top-right, spanning across the middle of the page. The paper is otherwise empty of any other markings or text.



Find P and θ .

[6]

[illegible]



[6]

[illegible]

Handwriting practice lines consisting of 20 horizontal dotted lines.

- 2 A particle of mass 8 kg is suspended in equilibrium by two light inextensible strings which make angles of 60° and 45° above the horizontal.

(a) Draw a diagram showing the forces acting on the particle. [1]

(b) Find the tensions in the strings. [6]

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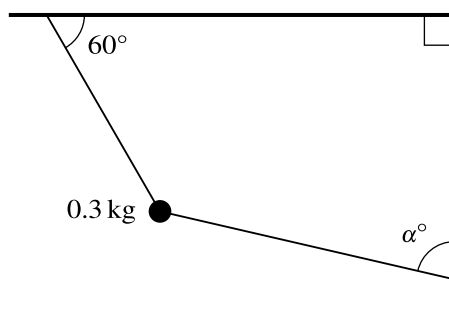
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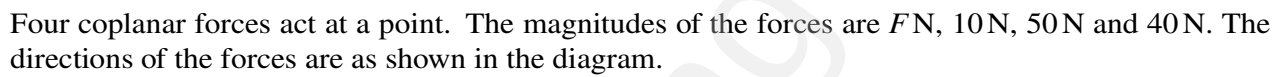
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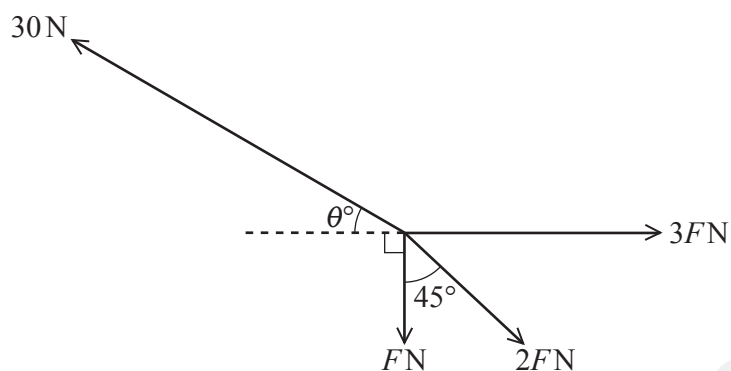
Find the tension in the string which is attached to the wall and find the value of α . [6]

Handwriting practice paper with horizontal lines and a diagonal watermark reading "pasta paper".



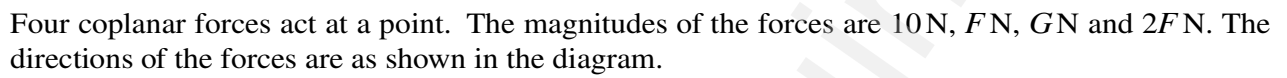
- [illegible]

- (b) Given instead that $F = 10\sqrt{2}$ and $\theta = 45$, find the direction and the exact magnitude the resultant force. [3]



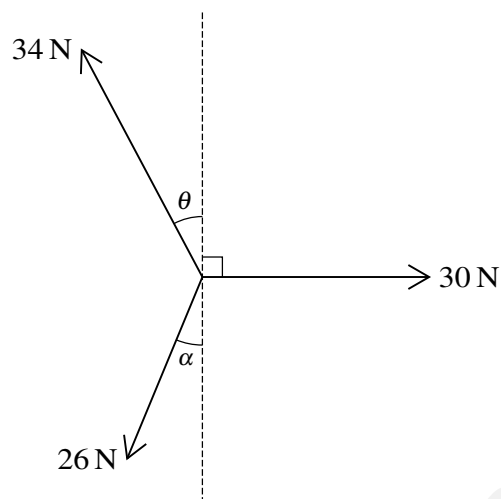
Given that the forces are in equilibrium, find the value of F and the value of θ . [6]

[illegible]



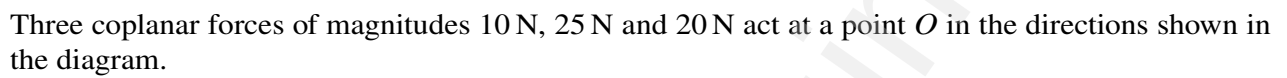
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- This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. A large, light gray watermark with the text "Pastpaperpenz" is oriented diagonally from the bottom-left towards the top-right, covering most of the page area.

- (b) Given instead that $F = 3$, find the value of G for which the resultant of the forces is perpendicular to the 10 N force. [2]



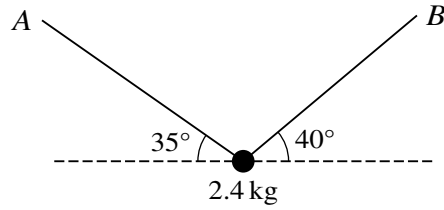
Given that $\sin \alpha = \frac{5}{13}$ and $\sin \theta = \frac{8}{17}$, find the magnitude and direction of the resultant of the three forces. [6]

pastpaperpen



- Handwriting practice paper with horizontal lines.

[illegible]

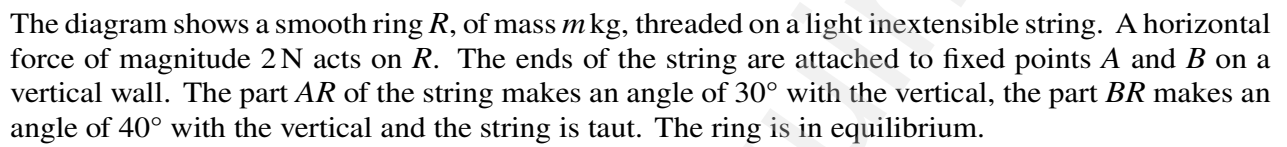


A particle of mass 2.4 kg is held in equilibrium by two light inextensible strings, one of which is attached to point A and the other attached to point B . The strings make angles of 35° and 40° with the horizontal (see diagram).

Find the tension in each of the two strings.

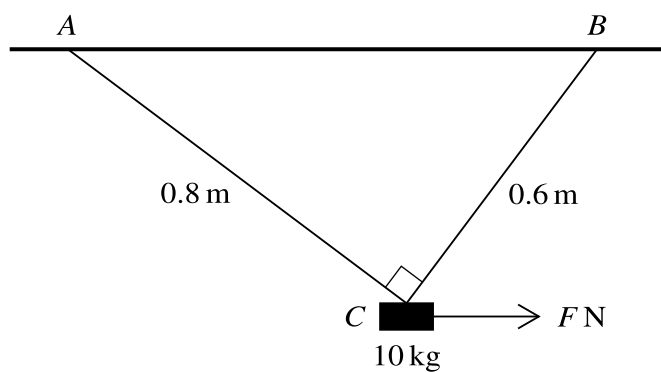
[5]

[illegible]



[5]

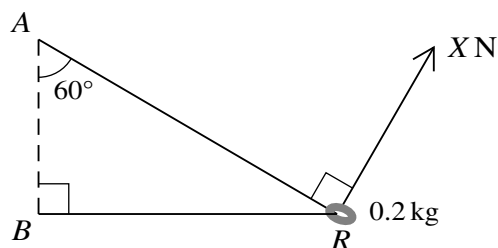
Handwriting practice paper with horizontal lines.



(a) In the case where $F = 20$, find the tensions in each of the strings. [5]

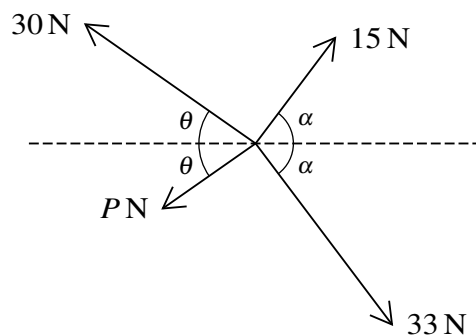
[illegible]

[illegible]



Calculate the tension in the string and the value of X . [5]

This image shows a blank sheet of white paper designed for handwriting practice. It features multiple horizontal rows of small, evenly spaced dots. A prominent, light gray watermark with the text "pastpaperbangla" is oriented diagonally from the bottom-left towards the top-right, covering a significant portion of the page. The background is plain white, and there are no other markings or text present.



(a) Show that $\left(\frac{14.4}{30-P}\right)^2 + \left(\frac{28.8}{P+30}\right)^2 = 1$. [4]

[illegible]

- (b) Verify that $P = 6$ satisfies this equation and find the value of θ . [2]