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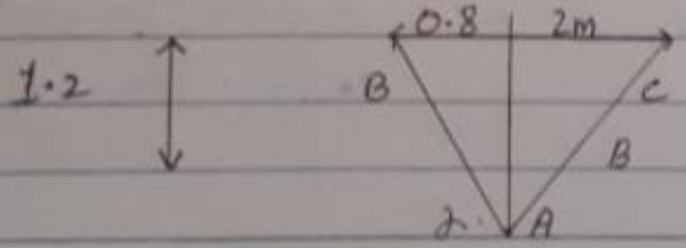
Department	BE (C)
Section	A
Semister	2nd

QUESTION NO # 04

:- Solution:-



$$\alpha = \tan^{-1}\left(\frac{1.2}{0.8}\right)$$

$$= 56.3$$

$B = \tan^{-1}\left(\frac{1.2}{2}\right)$

$B = 31.8$

Total Mass $= 400 + 6613.9 = 713.916$

OR 3181.45 kg.

The total weight is being held by cable AB is 85.8%

PART (a)

TESION IN AB:-

TENSION IN AB.

$T_{AB} = T_{AB}\,\underline{\Omega}\,AB = 0.858(3181.45)(9.81)\{\cos 56.3j + \sin 56.3j\}$

$= 14857i + 22278jN.$

PART (b)

Increase Weight by 15%

400 + 60 = 460 lb

INCREASING VOLUME BY 35%

300 + 1050 = 4050i OR 8928.7 lb.

Total weight :-

= 8928.7 + 460

⇒ 9388.7 lb

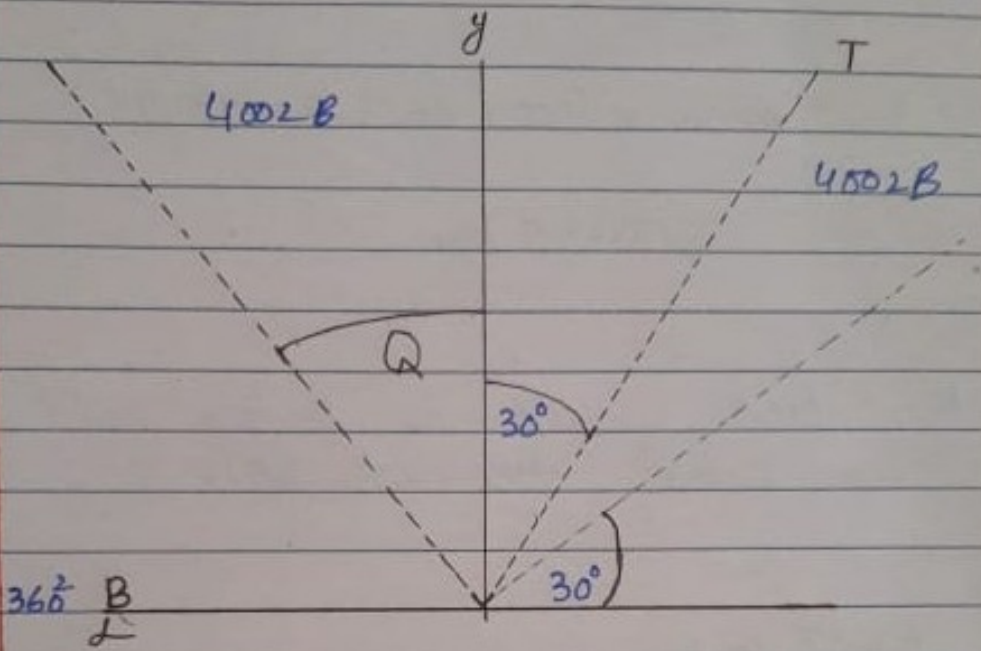
OR 4258.7 kg.

NOW FINDING TENSION IN AB

$T_{AB} = T_{AB} \Delta AC = 0.555(4258.7 (9.8j) \cdot \{\cos 3.0, \sin 3j\}$

$= 19874i + 11942j\ N$

-: QUESTION # (02) :-



AS we already known that Force on x axis is

$\Sigma F_x = 0$

$T\cos 30^\circ + 400 \sin 30 + 240 \cos Q = 600 \rightarrow (1)$

$T \sin 30^\circ + 400 \cos 30^\circ - 300 - 240 \sin Q = 0 \rightarrow (2)$

Solution of eqv (1) & (2)

$Q = 21^\circ, \quad T = 204 lb.$

QUESTION NO # 3 :-

Solution :-

400 Lb/Ft x 8 Ft = 3200 lb. 300 lb/Ft x 4 ft

= = 1200 Lb.

500 kg = 112.31 lb

$\Sigma MA = 0$

3200 - 1800 (7.5) - 1200 lb - 1102.31 (3.65)
+ by (12) = 0

By = 11952

$\Sigma Fy = 0$

Ay = 3200 - 1800 - 1200 - 1102.31 + 11950
= 0

Ay = 11.550.31

By = 11952 . Ay = 11550.31

The End