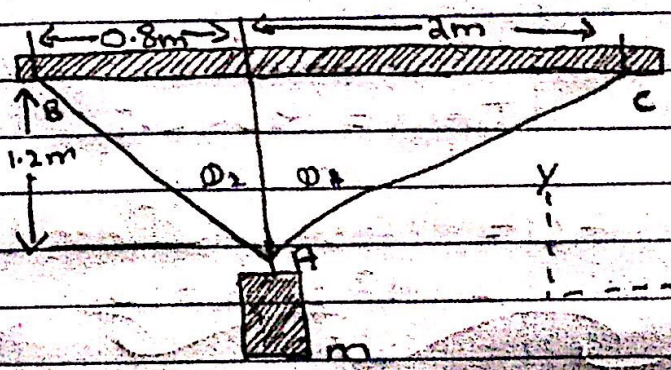
Date: / /20 (1) Day M T W T F S

Name = Uzair Ahmad Khan
ID = 16141
Section = B
Department = BE(civil)
Subject = Mechanics.

Q1 :- Part (a)



AB = Θ2
AC = Θ1
Θ1 = tan⁻¹ ( ) ÷ 1.2)
Θ1 = 59.036°

Θ2 = tan⁻¹ (0.8 ÷ 1.2)
Θ2 = 33.69°

W = 400LB
w = 3000Litre
water weight =
3000 x 2.205⁻
= 6615⁻LB
Total weight
= 400
6615⁻
7015LB

AB = 7015⁻ cos 33.69 = 5836.8376lb
AC = 7015⁻ cos (59.036) = 3609.213Lb

Q1 :- Part (b)

weight and value increased.
increased 15% & 35%.

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Date: / /20 (2) Day M T W T F S

Weight of tank = $\frac{400 \times 15}{100}$ = 60 + 400

= 460

Weight of water = $\frac{6615 \times 35}{100}$ =

= 2315.25 + 6615

= 8930.25

AB = 9390.25 cos 33.69 = 7813.16

Total = 9390.25

AC = 9390.25 cos 59.036

= 4831.271 lb

Q2:-

Solution:

T cos 60 + 400 sin 60 + 240 cos 30 = 600

T cos 30 = 600 − 400 sin 30 − 240 cos 30

T cos 30 = 192.1539 lb.

T = 221.88 Lb

Now Θ = 21.7

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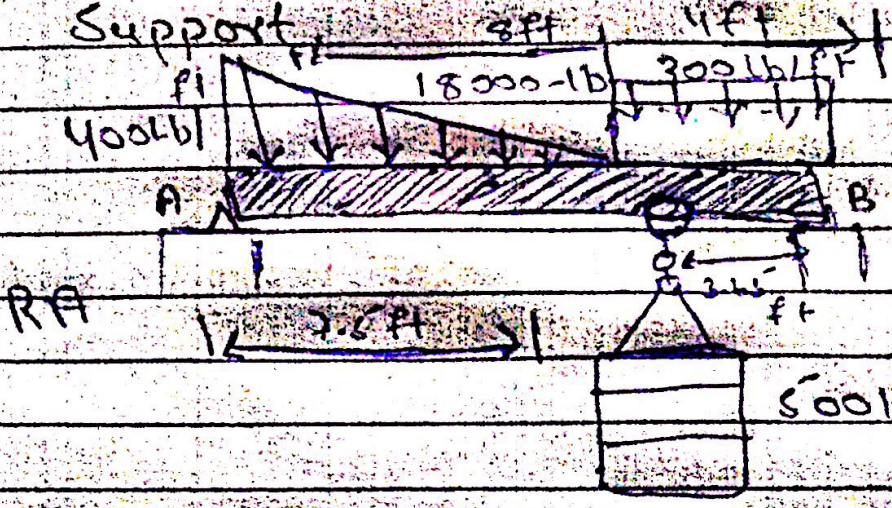
Q3:- Calculate the reaction at Support.



$\Sigma R_A = 0$

$$18000 \times 7.6 + 3000 \times \left(3.6 + 8\right) + 500 \times 8 + 400 \times \left(\frac{8}{2}\right) - R_b \times 11.6$$

$$11.6 R_b = 143647.6 \text{ lb}$$

$$R_b = 12391.67 \text{ lb}$$

$$R_A = 18000 + 300 \times 3.6 + 400 \times \frac{8}{2} + 500 - R_b$$

$$R_A = 20403.6 - R_b$$

$$R_A = 8081.98 \text{ lb}$$

End

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