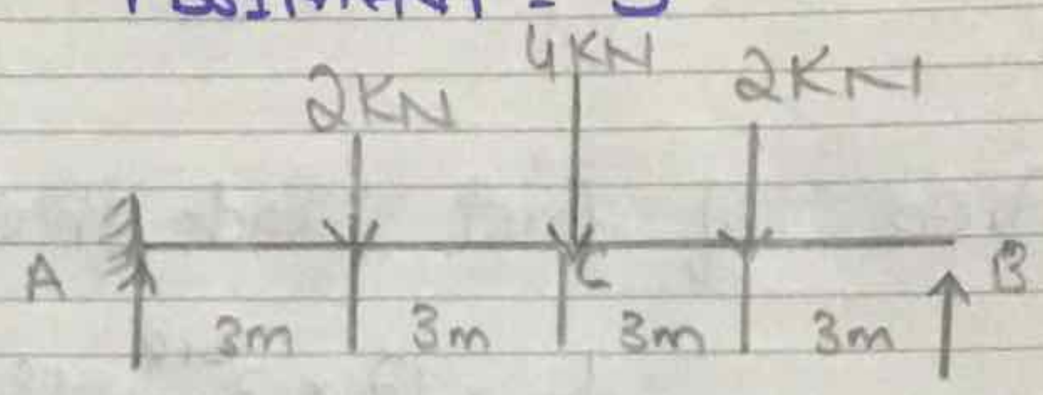
18578.

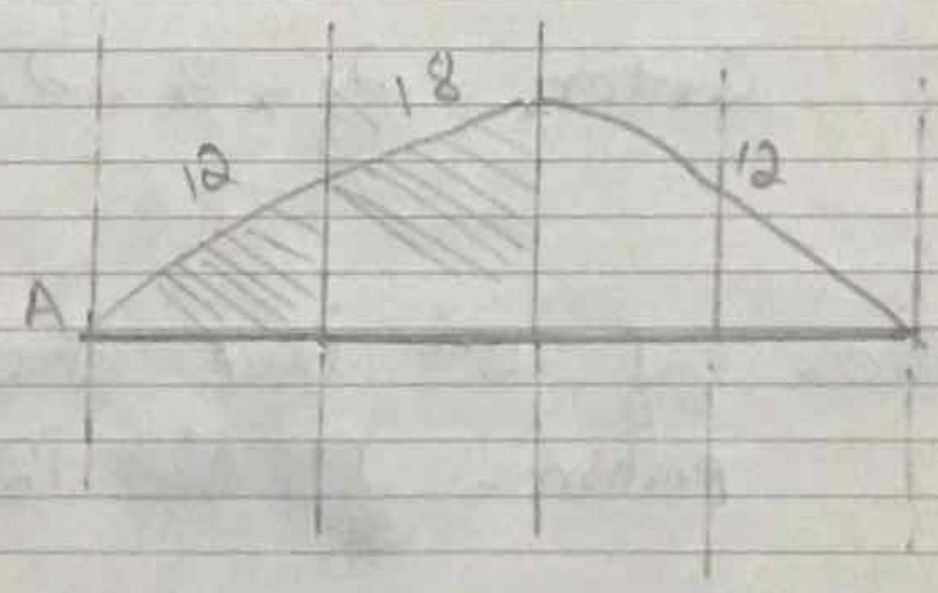
NAME = SULEMAN HAKEEM

I·D = 16757

ASSIMENT = 3

Q2)




$M_A = 0$

$M_D = 4 \times 3 = 12\,KN$

$M_C = 4 \times 6 - 2 \times 3 = 18\,KN.$

$M_E = 4 \times 9 - 2 \times 6 - 4 \times 3 = 12\,KN\,m$

deflection at C = Area × corresponding center of area from point A.

So,

⇒ Area of frist black sheet portion

$= \frac{1}{2} \times 12 \times 3 = 18 = \frac{18}{EI}$.

Center $= \frac{2}{3} \times 3 = 2$.

⇒ Area of 2nd blue sheet portion = [redacted] $12 \times 3 = 36 = \frac{36}{EI}$

Centroid $= 3 + \frac{3}{2} = 4.5$

⇒ Area of 3rd pencil portion

$= \frac{1}{2}(18-12) \times 3 = 9 = \frac{9}{EI}$

Centroid $= 3 + \frac{2}{3} \times 3 = 5$

8:00 am

So

8:30

Deflection at C

9:00

9:30 $\frac{18}{EI} \times 2 + \frac{36}{EI} \times 4.5 + \frac{9}{EI} \times 5$

10:00

10:30 $\Delta c = \frac{36}{EI} + \frac{162}{EI} + \frac{45}{EI} = \frac{243}{EI}$

11:00

11:30 To find slope = ?

Noon

Slope BA.

12:30

1:00 BA = Area Under Curve.

1:30 $BA = \frac{1}{2} \times 12 \times 3 + 12 \times 3 + \frac{1}{2} \times (18-12) \times 3$

2:00

$BA = 18 + 36 + 9$

2:30

3:00 $= \left\{ \frac{63}{EI} \right\}$ Ans.

3:30

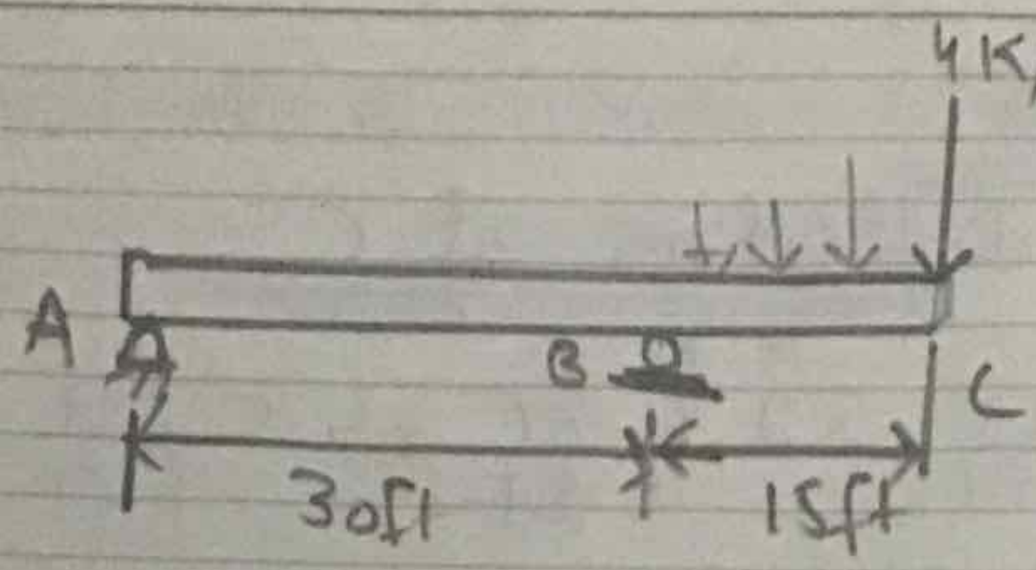
4:00

4:30

5:00

5:30 pm

Q1)




Using the $\frac{M}{EI}$ diagram and the elastic Curve shown in fig. a and b respectivily.

Theorm 1 and 2.

$$Q_{C/A} = \frac{1}{2}\left(\frac{60\,K\cdot ft}{EI}\right)(45\,ft)$$

$$= \frac{1350}{EI}\,K\cdot ft^2$$

$$|t_{B/A}| = \left[\frac{1}{2}\left(\frac{60}{EI}\,K\cdot ft\right)(30\,ft)\right]\left[\frac{1}{3}(30\,ft)\right]$$

$$= \frac{9000}{EI}\,K\cdot ft^3$$

8:00 am

$$|t_{C/A}| = \left[\frac{1}{2}\left(\frac{60\,K\cdot ft}{EI}\right)(30ft)\right]\left[15ft + \frac{1}{3}(30)\right] +$$

$$\left[\frac{1}{2}\left(\frac{60}{EI}\right)(15ft)\right]\left[\frac{2}{3}(15ft)\right]$$

$$= \frac{101250}{EI}\ K\cdot ft^3$$

Then $\Delta'$

So

$$\Delta' = \frac{45}{30}\left(t_{B/A}\right) = \frac{45}{30}\left(\frac{9000}{EI}\right)$$

$$= \frac{13500}{EI}\ K\cdot ft^3$$

$$\theta = \left|\frac{t_{B/A}}{L_{AB}}\right| = \frac{9000/EI}{30ft}$$

$$= \frac{300}{EI}\ K\cdot ft^2$$

8:00 am

$+\circlearrowleft \quad \theta_C = \theta_A + \theta_{C/A}$

8:30

9:00 $\quad \theta_C = -\frac{300}{EI} + \frac{1350}{EI} = \frac{1050}{EI}\ K\cdot ft^2$

9:30

10:00

10:30 $\quad \Delta_C = |t_{C/A}| - \Delta' = \frac{101250}{EI} K\cdot ft^3 - \frac{13500}{EI}$

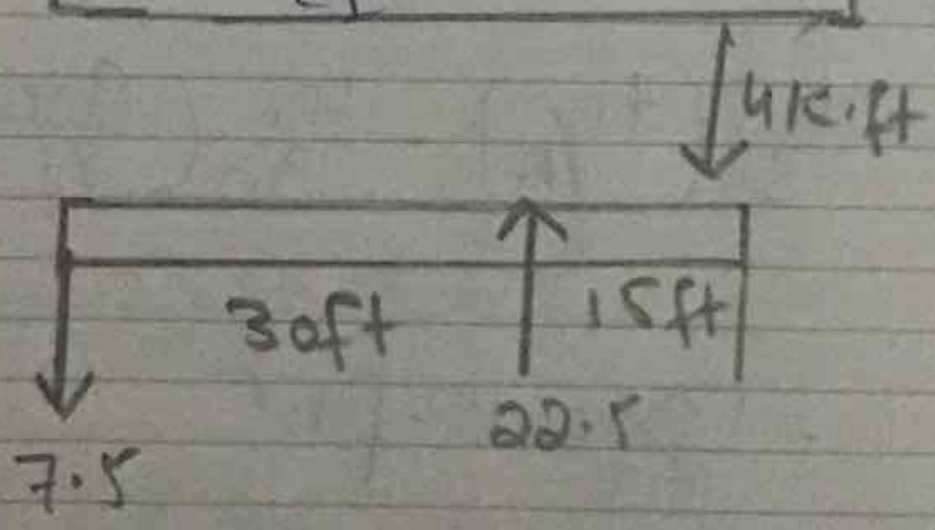
11:00

11:30

Noon $\quad \boxed{= \frac{87750}{EI}\ K\cdot ft^3}$

12:30

1:00




1:30

2:00

2:30

3:00

3:30

4:00

4:30

5:00

5:30 pm

*Cultivate a spirit of joy and praise. Not only will you light up your own heart, but the hearts of those around you. Always look for the good in people. In most cases you will find it. – Loretta Livingstone*