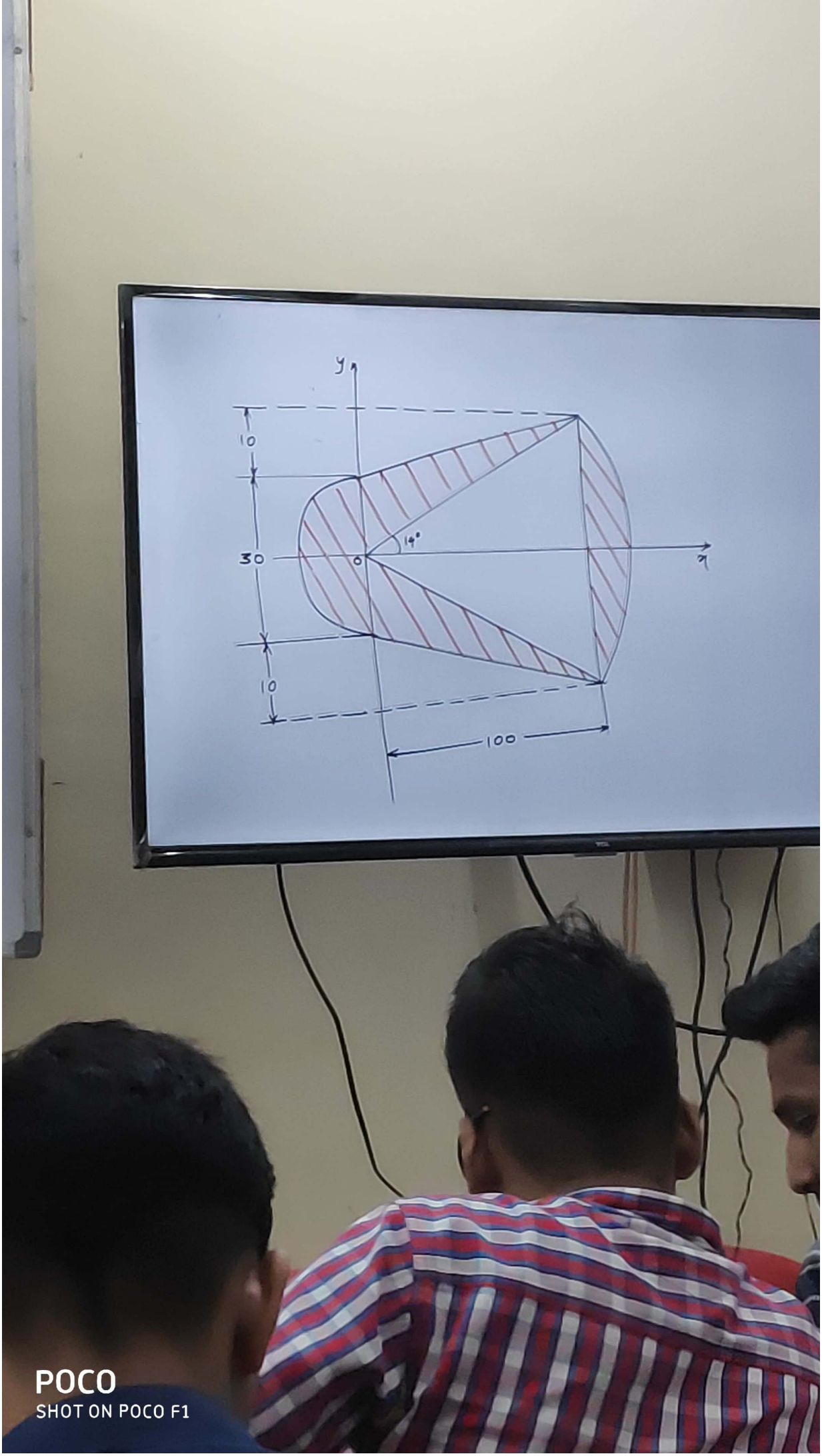
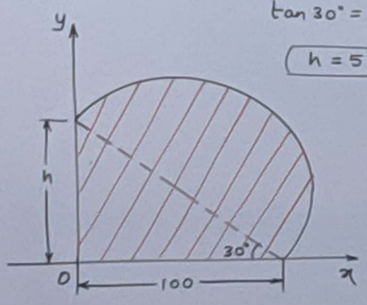


POCO
SHOT ON POCO F1

Scanned by CamScanner

$\frac{-A_2x_2-A_3x_3}{-A_2-A_3}$

(91.74, 69.35)



$\tan 30° = \frac{h}{100}$

$h = 57.73$

$x_1 = \frac{b}{3} = 33.33 \quad y_1 = \frac{h}{3} = 19.24$

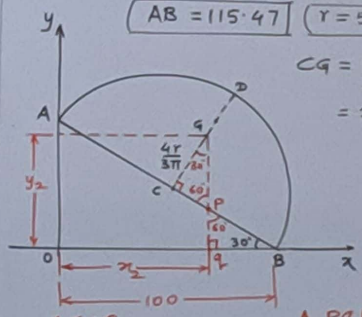
$A_1 = 2886.5$

$\cos 30° = \frac{100}{AB}$

$AB = 115.47 \quad r = 57.73$

$CG = \frac{4r}{3\pi}$

$= 24.5$



$x_2 = 100 - QB = 62.26$

$y_2 = GP + PQ = 50.08$

$A_2 = \frac{\pi r^2}{2} = 5235.07$

$\bar{X} = 51.97$

$\bar{Y} = 39.11$

ΔGCP

$\cos 30° = \frac{GC}{GP}$

$GP = 28.29$

$\sin 30° = \frac{CP}{GP}$

$CP = 14.15$

$PB = CB - CP$

$= 43.58$

ΔPQB

$\sin 30° = \frac{PQ}{PB}$

$PQ = 21.79$

$\cos 30° = \frac{QB}{PB}$

$QB = 37.74$

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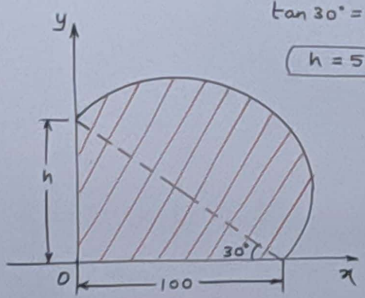
$- A_2 x_2 - A_3 x_3$

$_1 - A_2 - A_3$

4

5

$(91.74, 69.35)$



$\tan 30° = \frac{h}{100}$

$\boxed{h = 57.73}$

$x_1 = \frac{b}{3} = 33.33 \quad y_1 = \frac{h}{3} = 19.24$

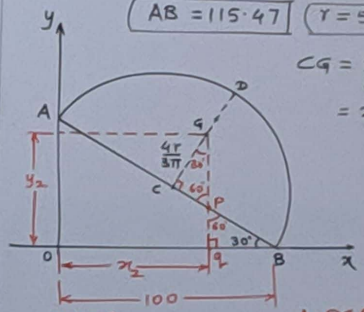
$A_1 = 2886.5$

$\cos 30° = \frac{100}{AB}$

$\boxed{AB = 115.47}$ $\boxed{r = 57.73}$

$CG = \frac{4r}{3\pi}$

$= 24.5$



$x_2 = 100 - qB = 62.26$

$y_2 = GP + Pq = 50.08$

$A_2 = \frac{\pi r^2}{2} = 5235.07$

$\boxed{\bar{X} = 51.97 \quad \bar{Y} = 39.11}$

ΔGCP

$\cos 30° = \frac{GC}{GP}$

$\boxed{GP = 28.29}$

$\sin 30° = \frac{CP}{GP}$

$\boxed{CP = 14.15}$

$PB = CB - CP$

$= 43.58$

ΔPqB

$\sin 30° = \frac{Pq}{PB}$

$\boxed{Pq = 21.79}$

$\cos 30° = \frac{qB}{PB}$

$\boxed{qB = 37.74}$

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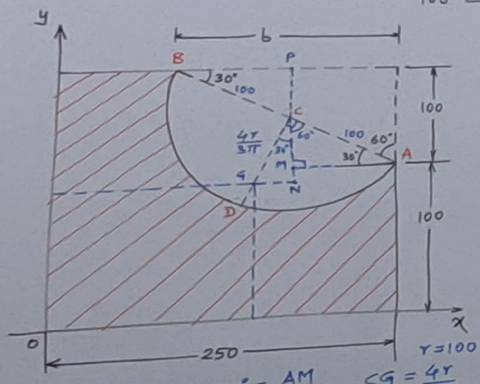
Centroid (8M)

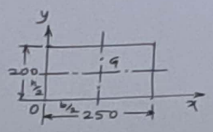
$\cos 60° = \frac{100}{dia}$ $\boxed{dia = 200}$

$\tan 60° = \frac{b}{100}$ $\boxed{b = 173.2}$



$\cos 30° = \frac{AM}{100}$ $\boxed{AM = 86.6}$

$CG = \frac{4r}{3\pi}$ $\boxed{CG = 42.44}$



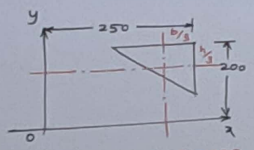
$x_1 = b/2 = 125$

$y_1 = h/2 = 100$

$A_1 = b \times h = 50000$

$\sin 30° = \frac{GN}{CG}$ $\boxed{GN = 21.22}$

$\cos 30° = \frac{CN}{CG}$ $\boxed{CN = 36.75}$



$b = 173.2$ $h = 100$

$x_2 = 250 - b/3 = 192.27$

$y_2 = 200 - h/3 = 166.66$

$A_2 = 8660$

$\sin 30° = \frac{CP}{100}$ $\boxed{CP = 50}$

Semi-Circle

$x_3 = 250 - GN - AM$

$= 250 - 21.22 - 86.6$

$\boxed{x_3 = 142.18}$

$y_3 = 200 - CN - CP$

$= 200 - 36.75 - 50$

$\boxed{y_3 = 113.25}$

$A_3 = \frac{\pi r^2}{2} = 15707.96$

$\bar{x} = \frac{A_1 x_1 - A_2 x_2 - A_3 x_3}{A_1 - A_2 - A_3}$

$\bar{x} = 91.74$

$\bar{y} = 69.35$

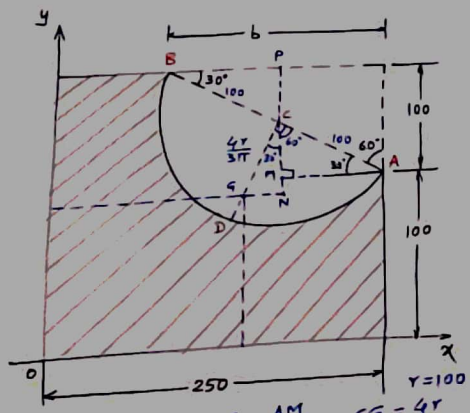
$\boxed{(\bar{x}, \bar{y}) = (91.74, 69.35)}$

Scanned by CamScanner

Centroid (8M)

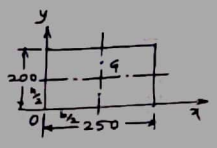
$\cos 60^\circ = \frac{100}{dia}$ $\boxed{dia = 200}$

$\tan 60^\circ = \frac{b}{100}$ $\boxed{b = 173.2}$



$\cos 30^\circ = \frac{AM}{100}$ $\boxed{AM = 86.6}$

$CG = \frac{4r}{3\pi}$ $\boxed{CG = 42.44}$



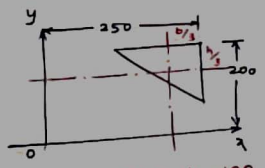
$x_1 = b/2 = 125$

$y_1 = h/2 = 100$

$A_1 = b \times h = 50000$

$\sin 30^\circ = \frac{GN}{CG}$ $\boxed{GN = 21.22}$

$\cos 30^\circ = \frac{CN}{CG}$ $\boxed{CN = 36.75}$



$b = 173.2$ $h = 100$

$x_2 = 250 - b/3 = 192.27$

$y_2 = 200 - h/3 = 166.66$

$A_2 = 8660$

$\sin 30^\circ = \frac{CP}{100}$ $\boxed{CP = 50}$

Semi-Circle

$x_3 = 250 - GN - AM$
$= 250 - 21.22 - 86.6$
$\boxed{x_3 = 142.18}$

$y_3 = 200 - CN - CP$
$= 200 - 36.75 - 50$
$\boxed{y_3 = 113.25}$

$A_3 = \frac{\pi r^2}{2} = 15707.96$

$\bar{X} = \frac{A_1 x_1 - A_2 x_2 - A_3 x_3}{A_1 - A_2 - A_3}$

$\bar{x} = 91.74$

$\bar{Y} = 69.35$

$\boxed{(\bar{x}, \bar{Y}) = (91.74, 69.35)}$

POCO

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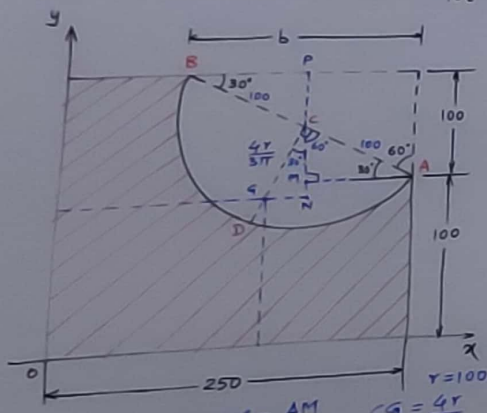
Centroid (8M)

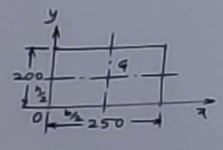
$\cos 60^\circ = \frac{100}{dia}$ $\boxed{dia = 200}$

$\tan 60^\circ = \frac{b}{100}$ $\boxed{b = 173.2}$



$\cos 30^\circ = \frac{AM}{100}$ $\boxed{AM = 86.6}$

$CG = \frac{4r}{3\pi}$ $\boxed{CG = 42.44}$



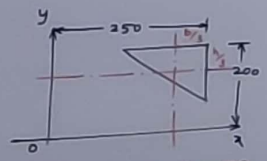
$x_1 = b/2 = 125$

$y_1 = h/2 = 100$

$A_1 = b \times h = 50000$

$\sin 30^\circ = \frac{GN}{CG}$ $\boxed{GN = 21.22}$

$\cos 30^\circ = \frac{CN}{CG}$ $\boxed{CN = 36.75}$



$b = 173.2$ $h = 100$

$x_2 = 250 - b/3 = 192.27$

$y_2 = 200 - h/3 = 166.66$

$A_2 = 8660$

$\sin 30^\circ = \frac{CP}{100}$ $\boxed{CP = 50}$

Semi-Circle

$x_3 = 250 - GN - AM$

$= 250 - 21.22 - 86.6$

$\boxed{x_3 = 142.18}$

$y_3 = 200 - CN - CP$

$= 200 - 36.75 - 50$

$\boxed{y_3 = 113.25}$

$A_3 = \frac{\pi r^2}{2} = 15707.96$

$\bar{x} = \frac{A_1 x_1 - A_2 x_2 - A_3 x_3}{A_1 - A_2 - A_3}$

$\bar{x} = 91.74$

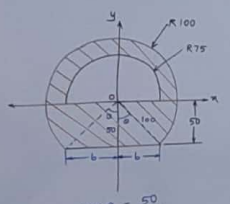
$\bar{y} = 69.35$

$\boxed{(\bar{x}, \bar{y}) = (91.74, 69.35)}$

POCO

Scanned by CamScanner

Centroid (8M)



$\cos\theta = \frac{50}{100}$

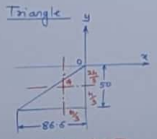
$\theta = 60^\circ$

$\tan\theta = \frac{b}{50}$

$b = 50 \tan 60^\circ$

$b = 86.6$

Triangle



$b = 86.6 \quad h = 50$

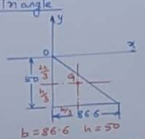
$x_1 = -\frac{b}{3} = -28.86$

$y_1 = -\frac{2h}{3} = -33.33$

$A_1 = \frac{1}{2} \times b \times h$

$= 2165$

Triangle



$b = 86.6 \quad h = 50$

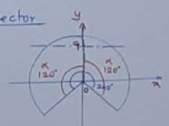
$x_2 = \frac{b}{3} = 28.86$

$y_2 = -\frac{2h}{3} = -33.33$

$A_2 = \frac{1}{2} \times b \times h$

$= 2165$

Sector



$\alpha = 120^\circ \quad r = 100$

$OG = \frac{2r \sin\alpha}{3\alpha}$

$= \frac{2 \times 100 \sin 120^\circ}{3 \times 120^\circ \times \frac{\pi}{180^\circ}}$

$OG = 27.57$

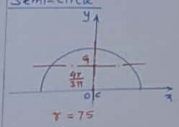
$x_3 = 0$

$y_3 = OG = 27.57$

$A_3 = r^2\alpha = 100^2 \times 120^\circ \times \frac{\pi}{180^\circ}$

$A_3 = 20943.95$

Semi-Circle



$r = 75$

$x_4 = 0$

$y_4 = \frac{4r}{3\pi} = 31.83$

$A_4 = \frac{\pi r^2}{2} = 8835.72$

$\bar{x} = 0$

$\bar{y} =$

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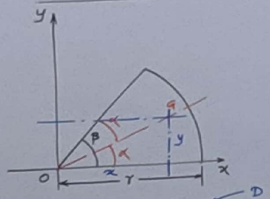
Centroid (8M)

Sector



$OG = \frac{2r\sin\alpha}{3\alpha}$ ← D, R

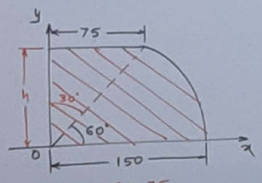
$\sin\alpha = \frac{y}{OG}$

$\boxed{y = OG\sin\alpha}$

$\cos\alpha = \frac{x}{OG}$

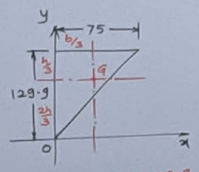
$\boxed{x = OG\cos\alpha}$

$A = r^2\alpha$



$\tan 30° = \frac{75}{h}$

$\boxed{h = 129.9}$



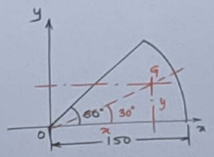
$b = 75 \quad h = 129.9$

$x_1 = \frac{b}{3} = 25$

$y_1 = \frac{2h}{3} = 86.6$

$A_1 = \frac{1}{2} \times b \times h$

$= 4871.25$



$\alpha = 30°$

$OG = \frac{2r\sin\alpha}{3\alpha}$

$= \frac{2 \times 150 \times \sin 30°}{3 \times 30° \times \frac{\pi}{180°}}$

$\boxed{OG = 95.49}$

$\sin 30° = \frac{y}{OG}$

$y = 95.49 \sin 30°$

$\boxed{y_2 = 47.74}$

$\cos 30° = \frac{x}{OG}$

$x = 95.49 \cos 30°$

$\boxed{x_2 = 82.69}$

$A_2 = r^2\alpha$

$= 150^2 \times 30° \times \frac{\pi}{180°}$

$A_2 = 11780.97$

$\bar{x} = 65.81$

$\bar{y} = 59.1$

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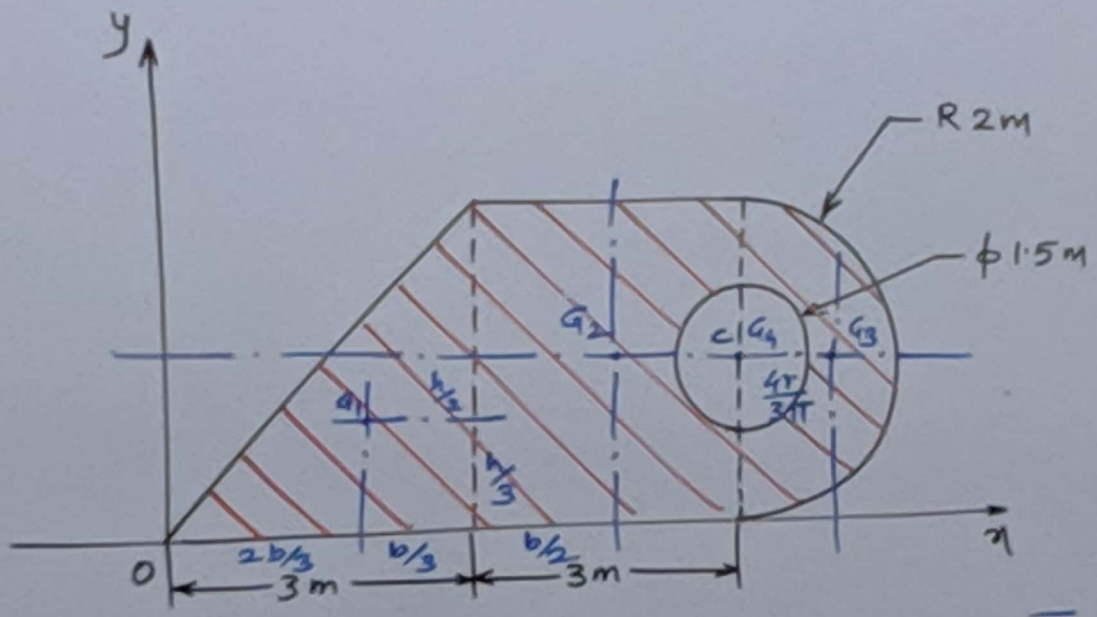
Q-17, Pg-10)



$x_1 = 2$ $y_1 = 1.33$ $A_1 = 6$

$x_2 = 4.5$ $y_2 = 2$ $A_2 = 12$

$x_3 = 6.84$ $y_3 = 2$ $A_3 = 6.28$

$x_4 = 6$ $y_4 = 2$ $A_4 = 1.76$

$\bar{x} = 4.37$

$\bar{y} = 1.82$

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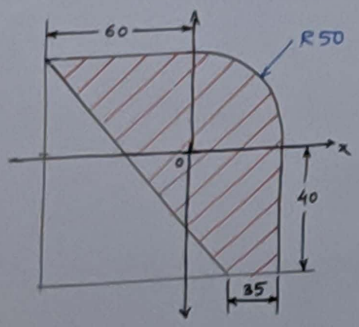
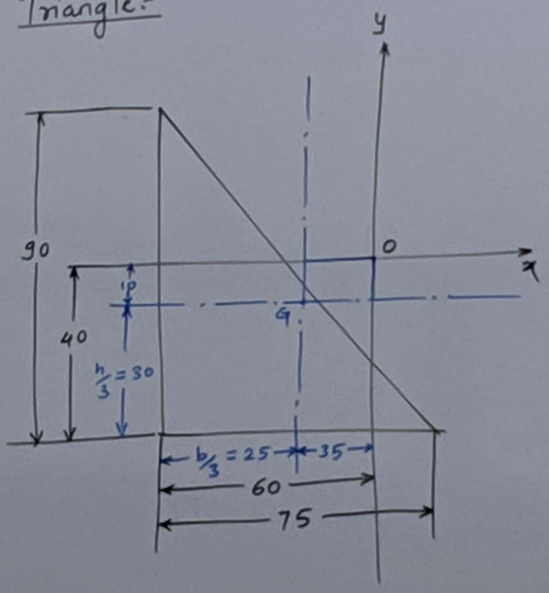
Centroid (8M)

Pg-9)

9.7) Find Centroid of shaded portion



Triangle:-



b = 75 h = 90

$x_5 = -35$

$y_5 = -10$

$A_5 = \frac{1}{2} \times b \times h$

$= 3375$

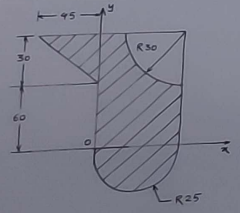
$\bar{X} =$

$\bar{Y} =$

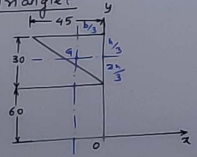
Scanned by CamScanner

Centroid (8M)

Pg-9
Q.4) Find Centroid of shaded Portion



Triangle:-



$b = 45, \quad h = 30$

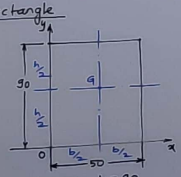
$\bar{x}_1 = -\frac{b}{3} = -15$

$y_1 = 60 + \frac{2h}{3} = 80$

$A_1 = \frac{1}{2} \times b \times h = \frac{1}{2} \times 45 \times 30$

$A_1 = 675$

Rectangle



$b = 50 \quad h = 90$

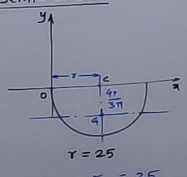
$\bar{x}_2 = \frac{b}{2} = 25$

$y_2 = \frac{h}{2} = 45$

$A_2 = b \times h = 50 \times 90$

$A_2 = 4500$

Semi-Circle:-

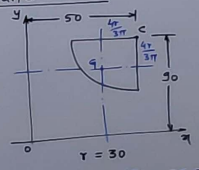


$\bar{x}_3 = r = 25$

$y_3 = -\frac{4r}{3\pi} = -10.61$

$A_3 = \frac{\pi r^2}{2} = 981.74$

Quarter Circle:-



$\bar{x}_4 = 50 - \frac{4r}{3\pi} = 37.26$

$y_4 = 90 - \frac{4r}{3\pi} = 77.26$

$A_4 = \frac{\pi r^2}{4} = 706.85$

$$\bar{x} = \frac{A_1\bar{x}_1 + A_2\bar{x}_2 + A_3\bar{x}_3 - A_4\bar{x}_4}{A_1 + A_2 + A_3 - A_4} = 18.45$$

$\bar{y} = 35.13$

$$(\bar{x}, \bar{y}) = (18.45, 35.13)$$

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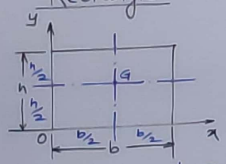
Centroid (8M)

Rectangle



$\frac{b}{2}$ & $\frac{h}{2}$ w.r.t 90° corner

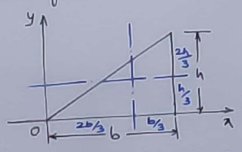
x & y w.r.t. origin

$x = \frac{b}{2}$

$y = \frac{h}{2}$

$A = b \times h$

Triangle



$\frac{b}{3}$ & $\frac{h}{3}$ w.r.t 90° corner

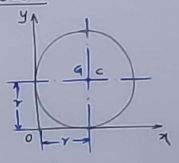
x & y w.r.t. origin

$x = \frac{2b}{3}$

$y = \frac{h}{3}$

$A = \frac{1}{2} \times b \times h$

Circle

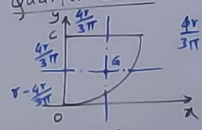


$x = r$

$y = r$

$A = \pi r^2$

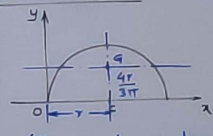
Quarter Circle



$\frac{4r}{3\pi}$ w.r.t centre

$x = \frac{4r}{3\pi}$ $y = r - \frac{4r}{3\pi}$ $A = \frac{\pi r^2}{4}$

Semi-Circle



$\frac{4r}{3\pi}$ w.r.t centre.

x & y w.r.t. origin

$x = r$

$y = \frac{4r}{3\pi}$

$A = \frac{\pi r^2}{2}$

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