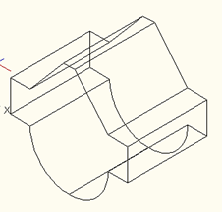
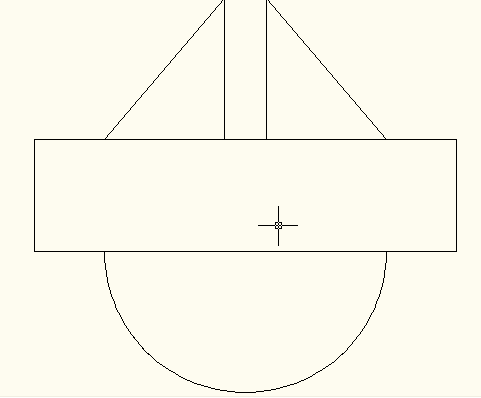
Para la viga mostrada calculé los esfuerzos máximos a tensión y a compresión, la curvatura ye l factor de seguridad, sabiendo que el material es de madera.

X=3



 Dividimos la figura

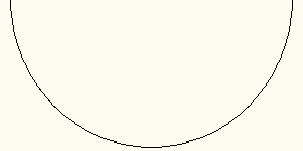
2

5

4

3

1

Figura 1

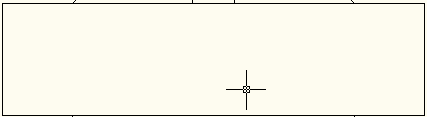
A= 157.07

Entonces = 4.24 cm

Y= 10-4.24= 5.76 cm

= =3926.99

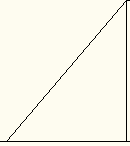
Figura 2

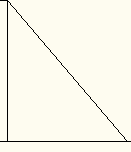


A= 240

= 4cm

= =1280

Figura 3 y 5

 A= 42.5

Entonces = 3.3 cm

= =236.11

Figura 4

 = A= 30

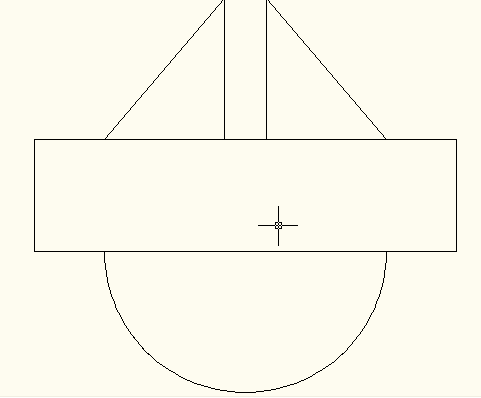
= 5 cm

= =250

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| fig | A | yi | Aiyi | di | di^2 | A di^2 | Ix | Ix +Adi^2 |
|  | cm^2 | cm | cm^2 | cm | cm^2 | cm^4 | cm^4 | cm^4 |
| 1 | 157,1 | 5,8 | 904,7 | 7,5 | 55,5 | 8717,8 | 3927,0 | 12644,8 |
| 2 | 240,0 | 14,0 | 3360,0 | 0,8 | 0,6 | 149,8 | 1280,0 | 1429,8 |
| 3 | 42,5 | 21,3 | 905,3 | 8,1 | 65,4 | 2781,5 | 236,1 | 3017,7 |
| 4 | 30,0 | 23,0 | 690,0 | 9,8 | 95,8 | 2875,3 | 250,0 | 3125,3 |
| 5 | 42,5 | 21,3 | 905,3 | 8,1 | 65,4 | 2781,5 | 236,1 | 3017,7 |
| AT | 512,1 |  | 6765,2 |  |  |  | Ix TOTAL | 23233,9 |

Centroide de la figura es

= = 13.21 cm



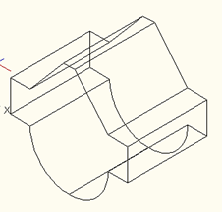
23.3

21.3

14

13.21

5.76



TRACCION

COMPRESION

ESFUERZO MAXIMO A TRACCION

C= 13.21 cm ≈ 0.1321 cm

Ix= 23233.9 ≈

Formula

= 1708189.6 Pa

ESFUERZO MAXIMO A COMPRESION

C= 14.79cm ≈ 0.15 cm

Ix= 23233.9 ≈

Formula

= 1939655.17Pa

CURVATURA

FACTOR DE SEGURIDAD

PARA TENSION

= 1.4

PARA COMPRESION

= 18.95