

Exercícios complementares do capítulo 5:

5.1 a 5.10 Determine a posição do centróide da superfície plana da figura.

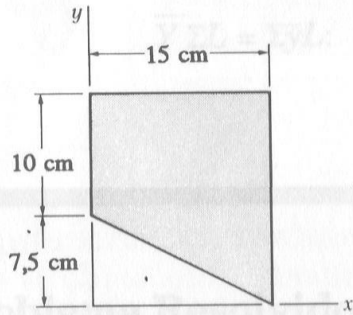


Figura P5.1

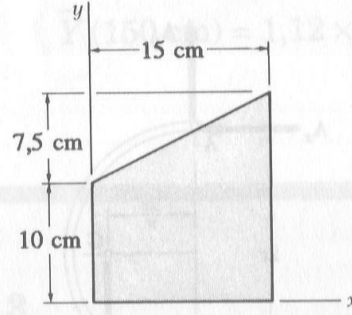


Figura P5.2

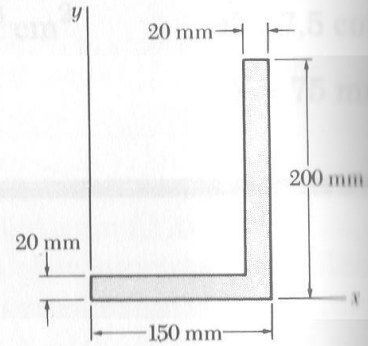


Figura P5.3

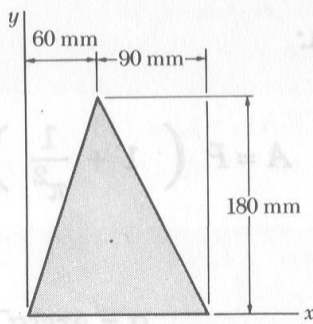


Figura P5.4

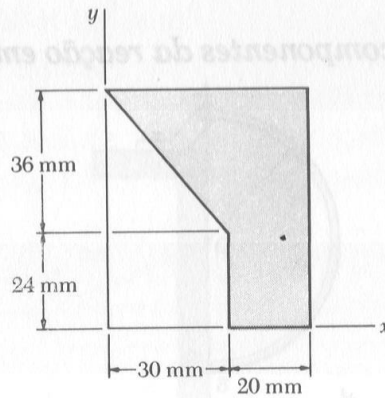


Figura P5.5

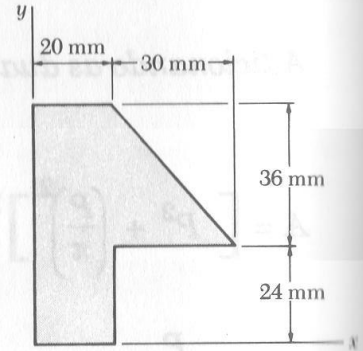


Figura P5.6

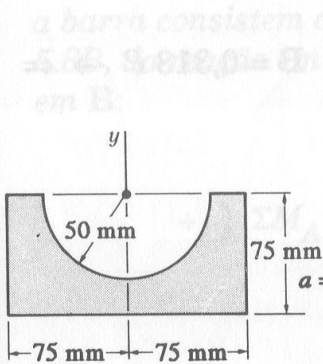


Figura P5.7

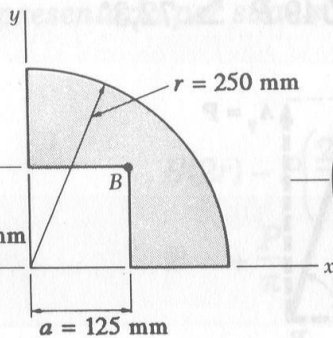


Figura P5.8

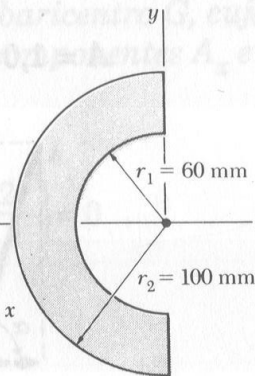


Figura P5.9

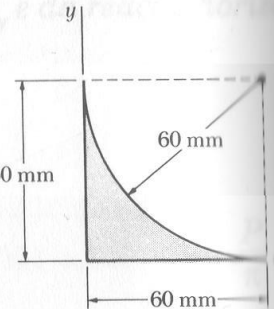


Figura P5.10

5.37 Divida a superfície escurecida, que fica sob a parábola, em cinco seções por retas verticais e determine de maneira aproximada a coordenada x de seu centróide. Aproxime as seções por retângulos $bcc'b'$. Qual o erro percentual da resposta obtida? (Veja a Fig. 5.8a para a resposta exata.)

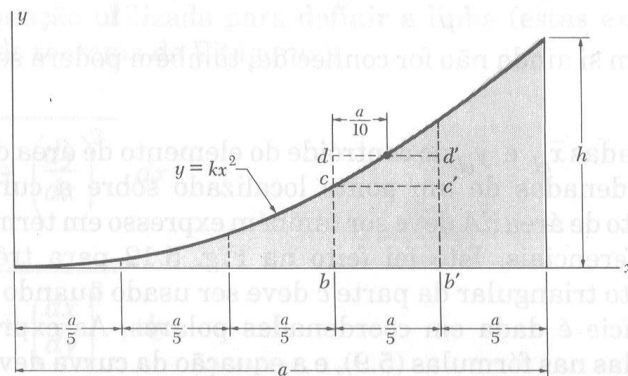


Figura P5.37

5.38 Resolva o Prob. 5.37 utilizando retângulos do tipo $b d d' b'$.

5.74 a 5.79 Determine as reações nos apoios das vigas para as condições de carregamento dadas.

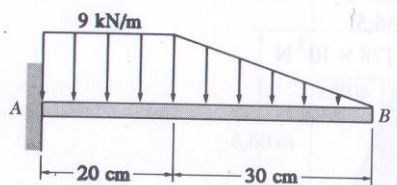


Figura P5.74

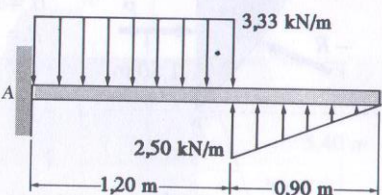


Figura P5.75

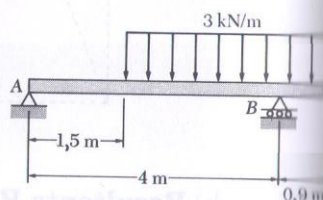


Figura P5.76

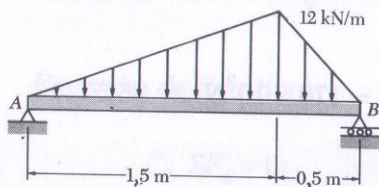


Figura P5.77

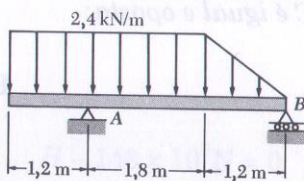


Figura P5.78

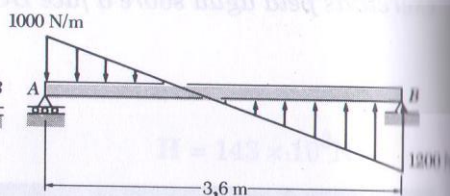


Figura P5.79

5.90 A comporta AB fica no extremo de um canal de água de 2 m de largura e está suspensa por dobradiças presas em sua borda superior A . Sabendo que o fundo do canal é liso, determine as reações em A e B com $d = 2,4$ m.

5.91 Resolva o Prob. 5.90 com $d = 1,8$ m.

5.92 A comporta quadrada AB é mantida na posição da figura por dobradiças presas a sua borda superior A e por um pino em B . Para uma profundidade de água $d = 1,05$ m, determine a força aplicada na comporta pelo pino.

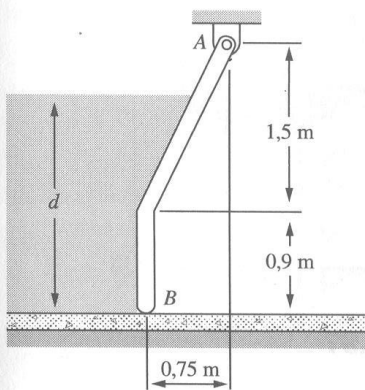


Figura P5.90

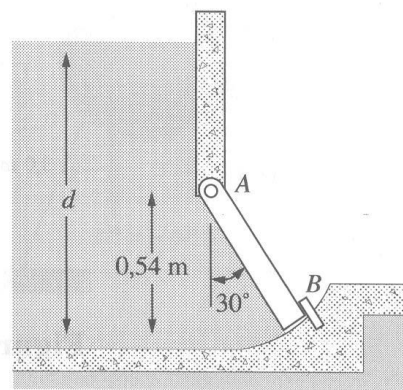
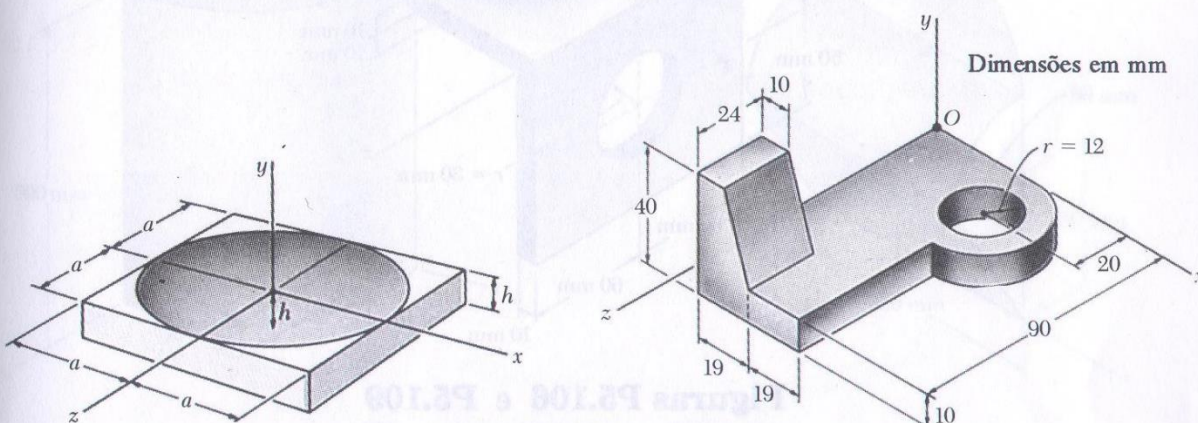


Figura P5.92

5.93 Resolva o Prob. 5.92 com $d = 1,50$ m.

5.105 Determine a coordenada x do baricentro da peça da figura.



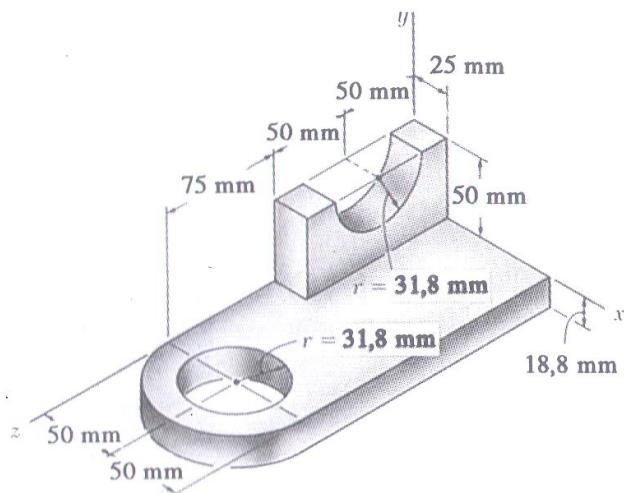
Figuras P5.104 e P5.105

5.106 e 5.107 Determine a coordenada y do baricentro da peça da ilustração.

5.106 Determine a coordenada x da figura 106

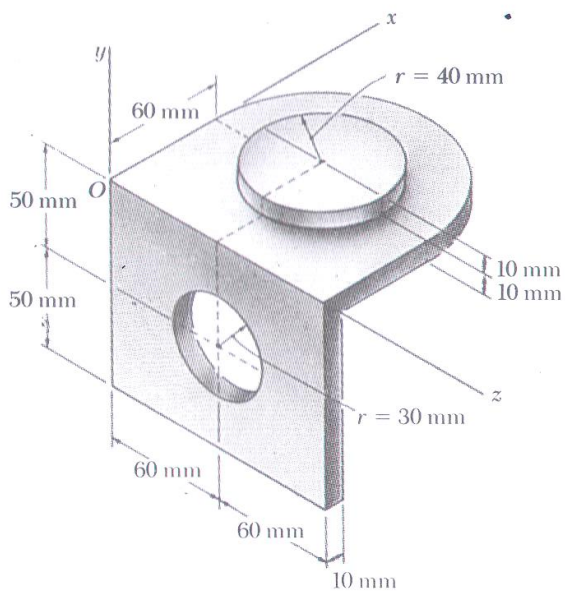
5.107 Determine a coordenada y da figura

5.108 Determine a coordenada z do baricentro da peça da figura.



Figuras P5.107 e P5.108

5.109 Determine a coordenada x do baricentro da peça da figura.



Figuras P5.106 e P5.109

5.110 Determine a coordenada z do baricentro da peça da figura.