

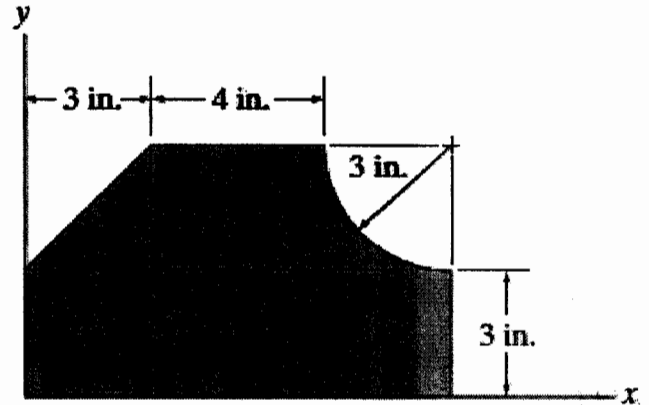
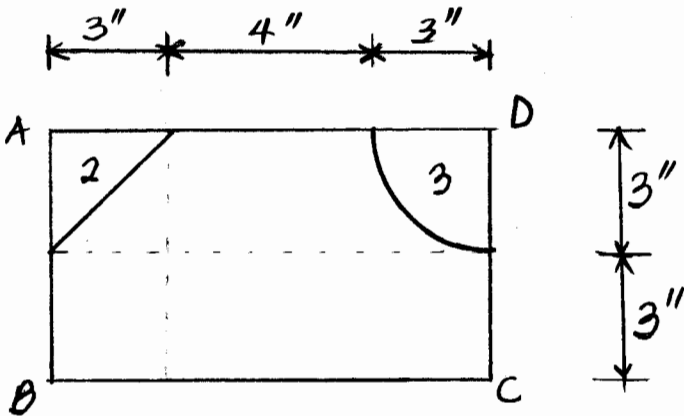
King Fahd University of Petroleum & Minerals
 CIVIL ENGINEERING DEPARTMENT
CE 201 STATICS (Sections 1 & 2)
 Second Semester 1432 / 2011 (102)

Name: _____
 ID #: _____

Quiz # 12

Score _____
 10

Locate the centroid (\bar{x}, \bar{y}) of the composite area shown.



Area # 1 is the area of rectangle ABCD

Part	A_i calculations	A_i	x_i calculations	x_i	y_i	$A_i x_i$	$A_i y_i$
1	$10 \cdot 6 =$	60	$10/2 =$	5	3	300	180
2	$-0.5 \cdot 3 \cdot 3 =$	-4.5	$1/3 \cdot 3 =$	1	5	-4.5	-22.5
3	$-0.25 \cdot \pi \cdot 3^2 =$	-7.0686	$10 - (4 \cdot 3 / 3\pi) =$	8.7268	4.7268	-61.6858	-33.4115
Σ		48.4314				233.8142	124.0885

$$\bar{x} = \frac{\sum_{i=1}^3 A_i x_i}{\sum_{i=1}^3 A_i} = \frac{233.8142}{48.4314} = 4.8277"$$

$$\bar{y} = \frac{\sum_{i=1}^3 A_i y_i}{\sum_{i=1}^3 A_i} = \frac{124.0885}{48.4314} = 2.5621"$$

Thus the area centroid $(\bar{x}, \bar{y}) = (4.8277", 2.5621")$