

King Fahd University of Petroleum and Minerals  
Department of Mathematical Sciences  
**Math 102(12&17) Quiz 5(Take Home) Spring 2004(042)**

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Sec#\_\_\_\_\_ Serial#\_\_\_\_\_

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(1) Use the method of disks to find the volume of the solid that results when the area of the region enclosed by  $y = x^3$ ,  $x = 1$  and  $y = 0$  is revolved about the  $x$ -axis. (Sec 7.2)

(2) Use the method of disks to find the volume of the solid that results when the area of the region enclosed by  $y = x^3$ ,  $x = 2$  and  $y = 0$  is revolved about the line  $x = 2$ .(Sec 7.2)

(3) Use the method of washers to find the volume of the solid that results when the area of the region enclosed by  $y = 4 - x^2$  and  $y = x + 2$  is revolved about the  $x$ -axis.(Sec 7.2)

(4) Use cylindrical shells to find the volume of the hemisphere that results when the area of the region in the first quadrant enclosed by the circle  $x^2 + y^2 = r^2$  is revolved about the  $x$ -axis. (sec 7.3)

(5) Use cylindrical shells to find the volume of the solid that results when the area of the region enclosed by  $y = x^2$ ,  $y = 0$  and  $x = 2$  is revolved about  $x = 2$ . (sec 7.3)

(6) Find the arc length of the curve  $y = 2x^{3/2}$  from  $x = 0$  to  $x = \frac{8}{9}$ . (Sec 7.4)

(7) Find the area of the surface generated by revolving the parametric curve  $x = \sinh^2 t$ ,  $y = \cosh^2 t$  and  $0 \leq t \leq 2$  about the  $y$ -axis. (Sec 7.5 & 7.8)

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