

**AP Calculus AB**

**8.3 Area/Volume Review**

Let  $R$  be the region enclosed by the curves  $y = 2x^3$  and  $y = 2\sqrt{x}$

1. Write an integral representing the area of region  $R$ .
2. Write an integral representing the volume of a solid formed such that cross sections taken perpendicular to the  $x$ -axis are squares with one side running between the two curves.
3. Write an integral representing the volume of a solid formed such that cross sections taken perpendicular to the  $y$ -axis are isosceles right triangles with one leg running between the two curves.
4. Write an integral representing the volume of the solid formed by revolving  $R$  about the...
  - a)  $x$ -axis
  - b)  $y$ -axis
  - c) Line  $x = -3$
  - d) Line  $y = 2$
  - e) Line  $x = 5$
  - f) Line  $y = -1$