In-Class Assignment 3: Volumes of Solids of Revolution

MATH 142

Directions: Work neatly on a separate sheet of paper. Your group will hand in one write-up with everyone's name on it. **DO NOT** fold the corner over to hold everything together!

Work together on each problem; do not delegate different problems to different people.

1. Set up an integral to find the volume of each object described. Integrate if directed.
   (a) $y = \tan^3 x, y = 1, x = 0$ about $y = 1$. **DO NOT** integrate.
   (b) $y = \dfrac{1}{1+x^2}, y = 0, x = 0, x = 2$ about $x = 2$. **DO NOT** integrate.
   (c) $y = 4x - x^2, y = 3$ about $x = 1$. Integrate.
   (d) A solid with a circular base and square vertical cross-sections.
   (e) $x = 2\sqrt{y}, x = 0, x = 9$ about the y-axis.
2. Find the volume of a square-based pyramid with side length b and height h. [Hint: use similar triangles to determine the areas of cross-sections.]
3. Stewart 6E, Section 6.3, Number 46 (page 369). (See screen.)