Volume Using Cross Sections

Example 1:

Find the volume of a solid between $y = x^2 - x + 1$ and $y = x + 1$ whose cross sections perpendicular to the x-axis are squares.

Example 2:

Find the volume of a solid between $y = x^2 - x + 1$ and $y = x + 1$ whose cross sections perpendicular to the x-axis are semicircles.

Example 3:

Find the volume of a solid between $y = x^2 - x + 1$ and $y = x + 1$ whose cross sections perpendicular to the x-axis are rectangles whose height is thrice its width.

Example 4:

Find the volume of a solid between $y = x^2 - x + 1$ and $y = x + 1$ whose cross sections perpendicular to the x-axis are equilateral triangles.