Area Between Curves and Volume Review Sheet

Find the area between the given curves.

1. $y = 1 + \sqrt{x}$ and $y = \left(\dfrac{3+x}{3}\right)$

2. $y = 4x^2$ and $y = x^2 + 3$

3. $x - 2y + 7 = 0$ and $y^2 - 6y - x = 0$

4. $y = \sec^2 x$ and $y = \cos x$

$x = -\dfrac{\pi}{4}$ and $x = \dfrac{\pi}{4}$

Find the volume of the given solid of revolution.

4. Determine the volume of the solid obtained by rotating the region bounded by
   $y = x^2 - 4x + 5$, $x = 1$, $x = 4$, and the x-axis about the x-axis.

5. Determine the volume of the solid obtained by rotating the portion of the region
   bounded by $y = \sqrt[3]{x}$ and $y = \dfrac{x}{4}$ that lies in the first quadrant about the y-axis.

6. Determine the volume of the solid obtained by rotating the region bounded by
   $y = x^2 - 2x$ and $y = x$ about the line $y = 4$.

7. Determine the volume of the solid obtained by rotating the region bounded by
   $y = 2\sqrt{x-1}$ and $y = x - 1$ about the line $x = -1$.