Sketch the following region enclosed by the curves and find its area by any method.

1. $y = x^3 - 4x,\ y = 0,\ x = 0,\ x = 2$

2. $y = \sec^2 x,\ y = 2,\ x = -\pi/4,\ x = \pi/4$

3. $y^2 = -x,\ y = x - 6,\ y = -1,\ y = 4$

4. $y = \sin x,\ y = \cos x,\ x = 0,\ x = 2\pi$

5. $x = y^3 - y$, $x = 0$

6. $x + y^2 = 3$, $4x + y^2 = 0$

Find the area of the shaded region analytically.

7.

$x = y^3$

$x = y^2$

8.

$y = -x^2 + 3x$

$y = 2x^3 - x^2 - 5x$