Areas Between The Curves

Sketch the region bounded by the given curves and find the area of the region:

1. $f(x) = x^2 + 3$, $g(x) = x$, $x = -1$, $x = 1$

2. $x + y^2 = 0$, $x = y^2 + 1$, $y = 0$, $y = 3$

3. $y = x$, $y = x^3$

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

5. $y = x^2 + 1$, $y = 3 - x^2$, $x = -2$, $x = 2$

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

7. $y = 2x - x^2$, $y = x^3$

8. $x = 1 - y^4$, $x = y^3 - y$

9. $y = 1/x$, $y = 1/x^2$, $x = 1$, $x = 2$

10. $y = 2^x$, $y = 5^x$, $x = -1$, $x = 1$

11. $y = \sin x$. $y = \cos x$, $x = 1$, $x = 3$

12. $y = 9(4x^2 + 5)^{-1}$, $y = 2 - x^2$