Find the area of the shaded region analytically.

1) \( y = x^3 \), \( y = x^2 \)

2) \( x = 12y^2 - 12y^3 \)

3) \( x = 2y^2 - 2y \)

4) \( x = y^2 \), \( y = -2y^4 \)

5) \( y = x^2 \), \( x + y = 2 \)

6) \( y = 4 - x^2 \), \( y = -x + 2 \)

7) Find the area of the region(s) enclosed by the graphs of \( x - y^2 = 0 \) and \( x + 2y^2 = 3 \).

8) Which of the following gives the area of the region between the graphs of \( y = x^2 \) and \( y = -x \) from \( x = 0 \) to \( x = 3 \)?
   A 2  B  9/2  C  13/2  D  13  E  27/2

Answers:
1) 1/12  2)  4/3  3) 128/15  4)  22/15  5)  5/6
6) 49/6  7)  4  8)