

Practices on area between curves:

Find the area bounded by the following curves or within specified interval. [You need to sketch the graphs and indicate if you are using vertical rectangle or horizontal rectangle method.]

1.  $y = x^2 + 2, y = -x, [-1, 2]$ .

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

3.  $y = \sqrt{x}, y = -x + 6, x - axis$ . [Use both vertical and horizontal rectangles.]

4.  $y = e^x, y = -x + 4, x - axis$ , and  $y - axis$ . [Use both vertical and horizontal rectangles.]

5.  $x = 6y - y^2, x = 0$

6.  $y = x^2 - 2, y = 2x^2 + x - 4$ .

7.  $y^2 - 2x = 0, y^2 + 4x - 12 = 0$ .

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

9.  $y = \sqrt{|x|}$  and  $y = 2$ . [Use both vertical and horizontal rectangles]

10. Set up the integral to find the area (in the first quadrant) bounded by the following two circles:  $C_1$ : center (0,0) radius 2, and  $C_2$  : center (0,0) radius 3.