

## Area between two curves

Date \_\_\_\_\_ Period \_\_\_\_\_

**NO Calculator: For each problem, find the area of the region enclosed by the curves.**

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

2)  $y = 2x^2 - 12x + 17$ ,  $y = \frac{x^2}{2} - 3x + \frac{5}{2}$ ,  
 $x = 1$ ,  $x = 5$

3)  $y = \sqrt{x}$ ,  $y = 2\sqrt{x}$ ,  
 $x = 0$ ,  $x = 4$

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

5)  $y = x^2 + 4x + 1$ ,  $y = -x - 3$

6)  $y = -x^3 + 6x$ ,  $y = -x^2$

**Calculator OK: For each problem, find the area of the region enclosed by the curves.**

7)  $y = \sin x$ ,  $y = -2\cos x$ ,  
 $x = -\frac{\pi}{6}$ ,  $x = \frac{\pi}{6}$

8)  $y = 2\sec^2 x$ ,  $y = -\sec^2 x$ ,  
 $x = -\frac{\pi}{4}$ ,  $x = \frac{\pi}{6}$

9)  $y = 2\sqrt{x}$ ,  $y = \frac{x^2}{4}$

10)  $y = 2x^2 + 4x - 3$ ,  $y = -2x - 3$

11)  $y = -\frac{x^2}{2} + 2x - 1$ ,  $y = -\frac{x}{2} - 4$

12)  $y = -\frac{x^3}{2} - \frac{x^2}{2} + 2x$ ,  $y = -\frac{x^2}{2}$