All the integration and calculations should be done by hand!
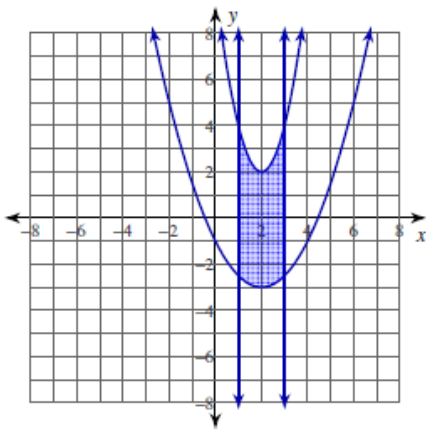
Use of Calculator: You can use a calculator to graph the graphs, find the points of interaction (when absolutely necessary), and confirm that your answer is correct.
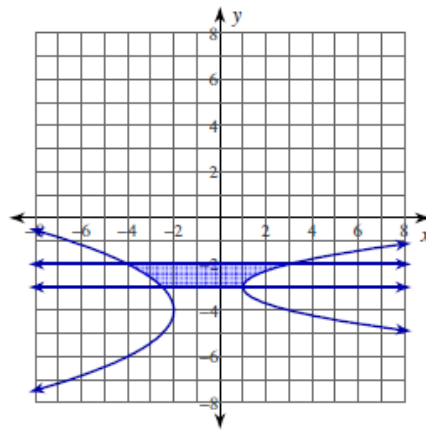
Area Between Curves
Date_____

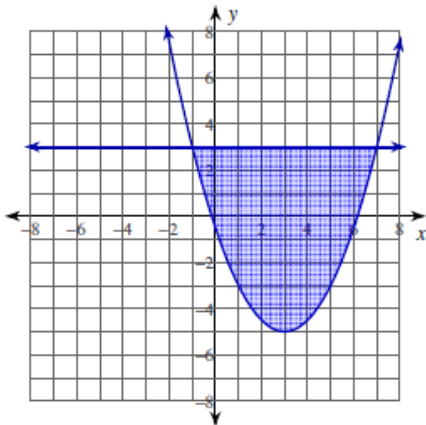**For each problem, find the area of the region enclosed by the curves.**

1) $y = 2x^2 - 8x + 10$
$y = \dfrac{x^2}{2} - 2x - 1$
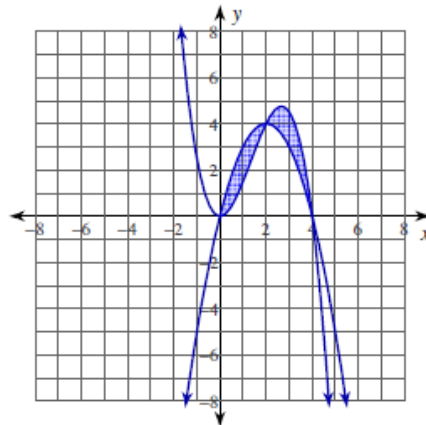$x = 1$
$x = 3$

2) $x = 2y^2 + 12y + 19$
$x = -\dfrac{y^2}{2} - 4y - 10$
$y = -3$
$y = -2$

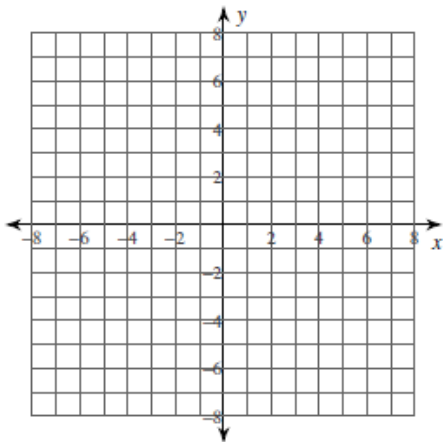3) $y = \dfrac{x^2}{2} - 3x - \dfrac{1}{2}$
$y = 3$

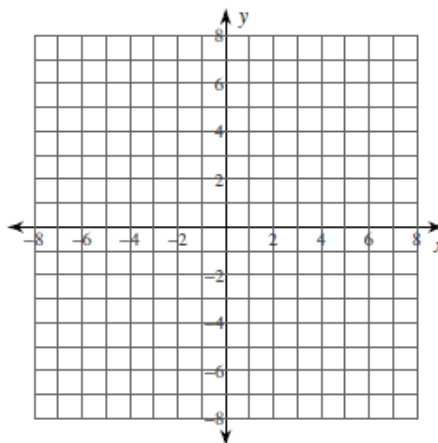4) $y = -\dfrac{x^3}{2} + 2x^2$
$y = -x^2 + 4x$

For each problem, find the area of the region enclosed by the curves. You should sketch the curves and shade the region <u>on your own papers.</u>
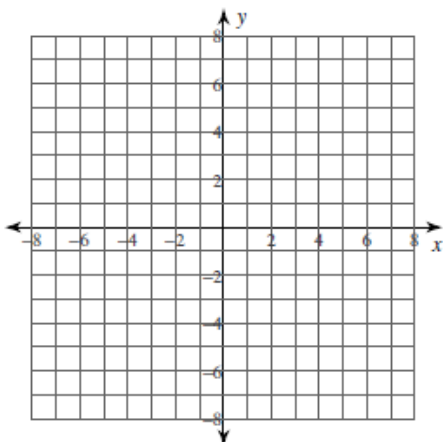
5) $y = -2x^2 - 1$
$y = -x + 3$
$x = 0$
$x = 1$

6) $y = 2\sqrt[3]{x^2}$
$y = x$

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

8) $y = -2 \cdot \sec^2 x$
$y = 2\cos x$
$x = 0$
$x = \dfrac{\pi}{4}$