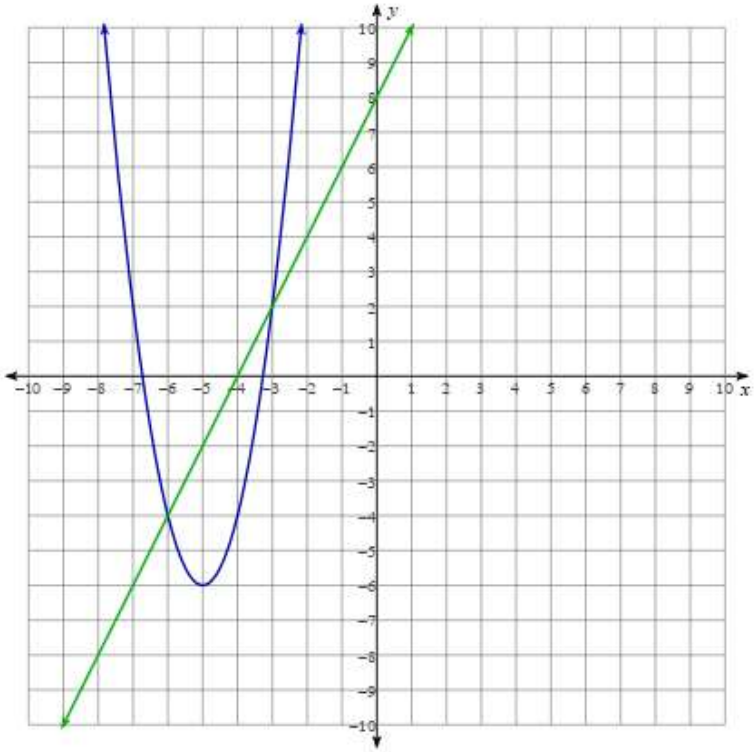
Find the intersection(s) of the graphs of the two equations.

1) $y = 2x^2 + 20x + 44$
$y = 2x + 8$

$y = 2(x^2 + 10x \quad\quad) + 44$
$\left(\frac{10}{2}\right)^2 = (5)^2 = 25$
$y = 2(x^2 + 10x + 25) + 44 - 50$
$y = 2(x + 5)^2 - 6$

$y = \frac{2}{1}x + 8$

The graphs intersect in two places.
$(-6, -4)$ and $(-3, 2)$

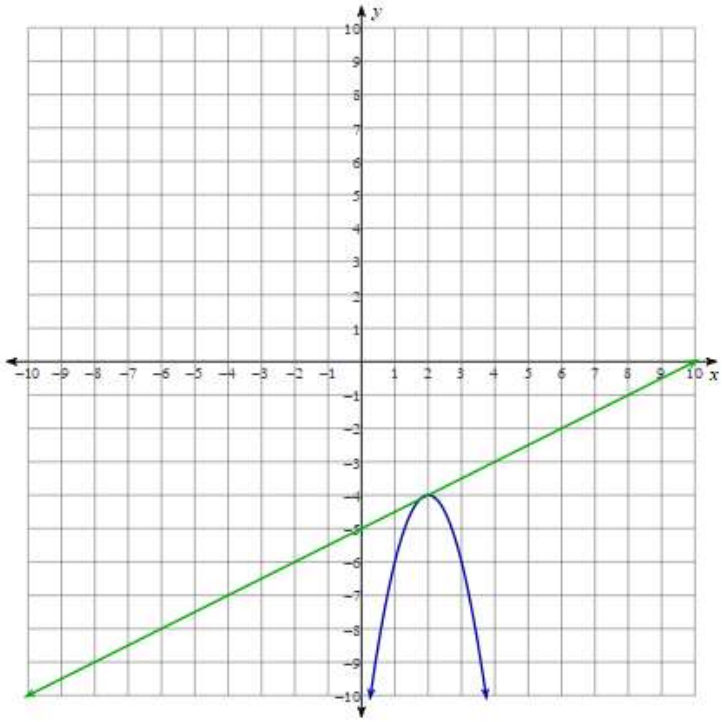


2) $y = -2x^2 + 8x - 12$
$y = \frac{1}{2}x - 5$

$y = -2(x^2 - 4x \quad\quad) - 12$
$\left(\frac{-4}{2}\right)^2 = (-2)^2 = 4$
$y = -2(x^2 - 4x + 4) - 12 + 8$
$y = -2(x - 2)^2 + 4$

$y = \frac{1}{2}x - 5$

The graphs intersect in one place.
$(2, -4)$

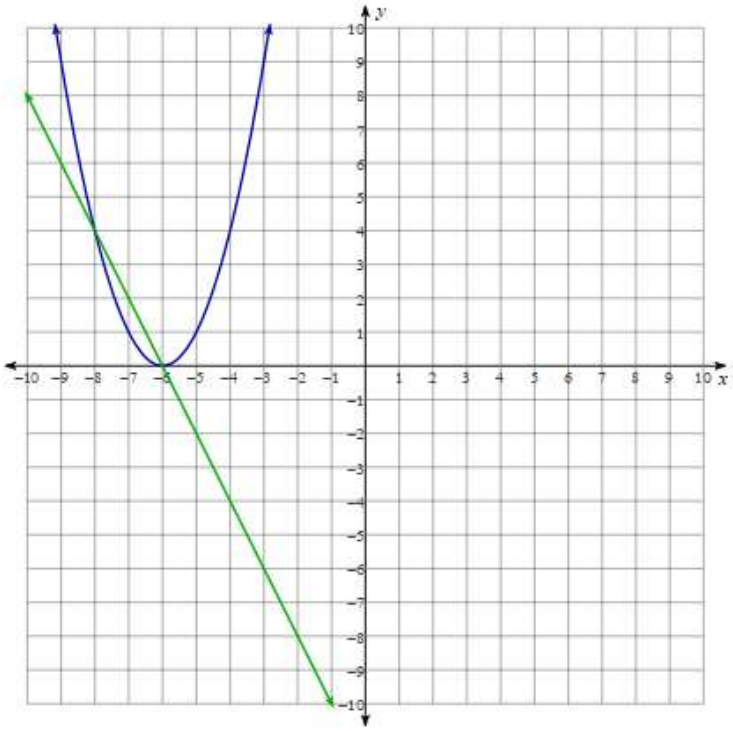


3) $y = x^2 + 12x + 36$
$y = -2x - 12$

$y = (x^2 + 12x \quad) + 36$
$\left(\frac{12}{2}\right)^2 = (6)^2 = 36$
$y = (x^2 + 12x + 36) + 36 - 36$
$y = (x + 6)^2$

$y = \frac{-2}{1}x - 12$

The graphs intersect in two places.
$(-8, 4)$ and $(-6, 0)$



4) $y = x^2 - 4$
$y = -x - 2$

$y = x^2 - 4$

$y = \frac{-1}{1}x - 2$

The graphs intersect in two places.
$(-2, 0)$ and $(1, -3)$