ID: 1

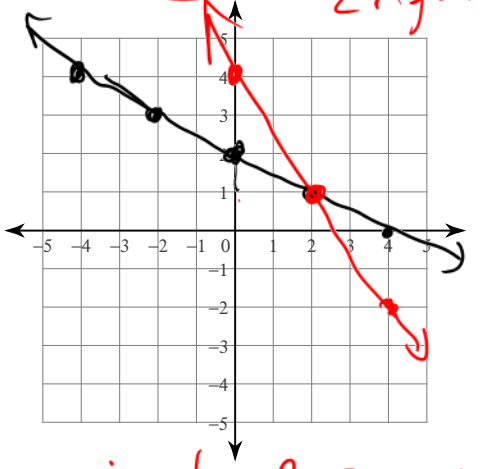
Name_____

Solving Linear Systems of Equations

Solve each system by graphing

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

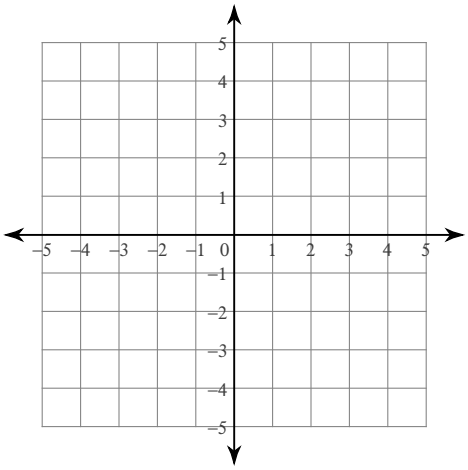
$y = -\frac{3}{2}x + 4$



∴ the POI is (2, 1)

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

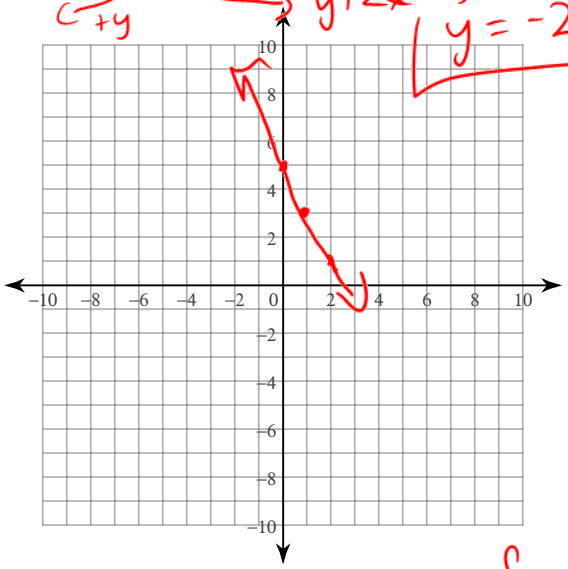
$y = 2x + 4$



Solve each system by graphing.

3) $-5 + y + 2x = 0$

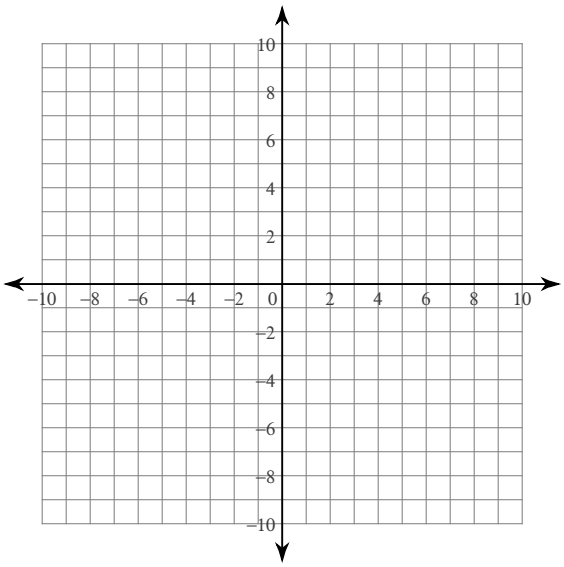
$2x = 5 - y$



Infinite number of solutions

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

$y + 3 = -x$



Solve each system.

5) $-4x - 6y = -22$
$-x + 2y = 12$ → $2y = 12 + x$ (−12 −12)
$2y - 12 = x$ (sub)

$-4(2y-12) - 6y = -22$
$-8y + 48 - 6y = -22$
$-14y = -70$
$y = 5$

$2(5) - 12 = x$
$10 - 12 = x$
$-2 = x$

∴ The POI is $(-2, 5)$

6) $-4x - 14y = 4$
$[2x + 7y = -4] \times 2$ (Elimination)

7) $-4x + 2y = 12$
$x - 5y = 6$ (sub)

8) $-x + y = -1$
$6x + 4y = -4$ (sub)

9) $5x = 5y + 25$ → $[5x - 5y = 25] \times 4$
$4x - 2y = 18$ → $[4x - 2y = 18] \times 5$ (Elim)

$20x - 20y = 100$
$-[20x - 10y = 90]$
$0x - 10y = 10$
$-10y = 10$
$y = -1$

$5x = 5(-1) + 25$
$5x = -5 + 25$
$5x = 20$
$x = 4$

∴ The POI is $(4, -1)$

10) $-48 = 36y - 21x$
$9y - 4x = -22$

11) $-x - 8y = 17$
$5x + 4y = 23$

12) $6x - 6y = -24$
$-5x - 5y = 10$

Substitution: - Best when it is easy to isolate a variable.

Elimination: - when substitution isn't easy

Answers to Solving Linear Systems of Equations (ID: 1)

1) $(2, 1)$
2) $(-4, -4)$
3) Infinite number of solutions
4) $(-1, -2)$
5) $(-2, 5)$
6) No solution
7) $(-4, -2)$
8) $(0, -1)$
9) $(4, -1)$
10) $(-8, -6)$
11) $(7, -3)$
12) $(-3, 1)$