Linear Systems: Solving by Elimination

Date _____

PRACTICE QUESTIONS: Solve the following systems using Elimination ...

a) $2x + y = 7$
$x + y = 5$

b) $2x + 3y = 4$
$-2x - 7y = 16$

Rearrange first so the x's and y's line up!

c) $5y = -3x + 14$
$2x - 5y = 1$

Rearrange first so the x's and y's line up!

d) $-2y + x = -19$
$5x = -2y + 1$

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PRACTICE QUESTIONS: Solve the following systems using Elimination ...

a) $2x + y = 7$ ①
$x + y = 5$ ②

SUBTRACT

$x + 0 = 2$

$\boxed{x = 2}$

Sub. $x = 2$ into ②

$(2) + y = 5$

$y = 5 - 2$

$\boxed{y = 3}$

∴ POI is $(2, 3)$.

b) $2x + 3y = 4$ ①
$-2x - 7y = 16$ ②

ADD

$0 - 4y = 20$

$\frac{-4y}{-4} = \frac{20}{-4}$

$\boxed{y = -5}$

sub $y = -5$ into ①

$2x + 3(-5) = 4$

$2x - 15 = 4$

$2x = 4 + 15$

$\frac{2x}{2} = \frac{19}{2}$ $\boxed{x = \frac{19}{2}}$

∴ POI is $(19/2, -5)$

Rearrange first so the x's and y's line up!

c) $5y = -3x + 14$ ① $3x + 5y = 14$
$2x - 5y = 1$ ②

ADD

$3x + 5y = 14$
$2x - 5y = 1$

$5x + 0 = 15$

$\frac{5x}{5} = \frac{15}{5}$

$\boxed{x = 3}$

Sub. $x = 3$ into ②

$2(3) - 5y = 1$

$6 - 5y = 1$

$-5y = 1 - 6$

$\frac{-5y}{-5} = \frac{-5}{-5}$

$\boxed{y = 1}$

POI is $(3, 1)$

Rearrange first so the x's and y's line up!

d) $-2y + x = -19$ ①
$5x = -2y + 1$ ② → $2y + 5x = 1$ ③

$-2y + x = -19$
$+ \quad 2y + 5x = 1$

$0 + 6x = -18$

$\frac{6x}{6} = \frac{-18}{6}$

$\boxed{x = -3}$

Sub $x = -3$ into ①

$-2y + (-3) = -19$

$-2y - 3 = -19$

$-2y = -19 + 3$

$\frac{-2y}{-2} = \frac{-16}{-2}$

$\boxed{y = 8}$

∴ POI is $(-3, 8)$