

Name

6.2 Solve Linear Systems by Substitution

Alg I

I can solve Systems of linear equations by substitution.

Semester Exam

Steps to Solve a Linear System by Substitution

- 1) Solve the easier equation for one variable
- 2) Substitute 1st expression and solve
- 3) Substitute 2nd expression and solve

Example 1/2:

1) $y = 2x + 5$

$y = 2(1) + 5$
 $y = 2 + 5$
 $y = 7$

$3x + y = 10$
 $3x + (2x + 5) = 10$
 $5x + 5 = 10$
 $\quad -5 \quad -5$

 $5x = 5$
 $\quad \underline{5} \quad \underline{5}$
 $x = 1$

(1, 7)

2) $x - y = 3$

$\quad +y \quad +y$

 $x = y + 3$

$x = -3 + 3$
 $x = 0$

$x + 2y = -6$
 $(y + 3) + 2y = -6$
 $3y + 3 = -6$
 $\quad -3 \quad -3$

 $3y = -9$
 $\quad \underline{3} \quad \underline{3}$
 $y = -3$

(0, -3)

Name

Alg I

Solve Linear Systems by Substitution

I can solve systems of linear equations by substitution.

3) $3x + y = -7$ $-2x + 4y = 0$

$-3x \quad -3x$

$y = -3x - 7$

$-2x + 4(-3x - 7) = 0$

$-2x - 12x - 28 = 0$

$-14x - 28 = 0$

$+28 \quad +28$

$-14x = 28$

$-14 \quad -14$

$x = -2$

$y = -3(-2) - 7$

$y = 6 - 7$

$7 - 6 = 1$

$y = -1$

$(-2, -1)$

Semester Exam

*Skills Practice, pg. 381, #

Example 3:

4) $y = 10 + 21.95x$ $y = 22.45x$ $x = 20$

$y = 10 + 21.95(20)$ $y = 22.45(20)$

$y = 10 + 439$ $y = 449$

$y = 449$

Example 4:

5) $y = 5 + 21.95x$ $y = 22.45x$

$22.45x = 5 + 21.95x$

$-21.95x \quad -21.95x$

$.50x = 5$

$.50 \quad .50$

$x = 10 \text{ months}$