

Name: _____

Algebra II: Homework #7: Solving Systems of Linear Equations

By Substitution and Elimination

Directions: On the following worksheet, do problems 1-20. For problems 1-10, use the method of substitution. For problems 11-20, use the method of elimination. Write all work neatly and readably on separate paper, and write the answer in the given space on the worksheet. Also be sure to include any unfinished classwork problems.

The following worksheet can be found

http://www.mathmax.com/introalg/chapter/ch_ep/EP_31.pdf

EXTRA PRACTICE 31
Solving Systems of Linear Equations
 Use after Sections 8.2 and 8.3

Name _____

Examples:

a) Solve using the substitution method: $5x - 2y = 4$,
 $y = 5 - x$.

Substitute $5 - x$ for y .

$$\begin{aligned} 5x - 2y &= 4 \\ 5x - 2(5 - x) &= 4 \\ 5x - 10 + 2x &= 4 \\ 7x &= 14 \\ x &= 2 \end{aligned}$$

Then substitute 2 for x and solve for y .

$$\begin{aligned} y &= 5 - x \\ y &= 5 - 2 \\ y &= 3 \end{aligned}$$

The solution is $(2, 3)$.

b) Solve using the elimination method: $2x + 7y = -1$,
 $-x - 2y = 2$.

Multiply the second equation
 by 2 and then add.

$$\begin{aligned} 2x + 7y &= -1 \\ -2x - 4y &= 4 \\ \hline 3y &= 3 \\ y &= 1 \end{aligned}$$

Then substitute 1 for y and solve for x .

$$\begin{aligned} 2x + 7y &= -1 \\ 2x + 7 \cdot 1 &= -1 \\ 2x + 7 &= -1 \\ 2x &= -8 \\ x &= -4 \end{aligned}$$

The solution is $(-4, 1)$.

Solve.

1. $4x + 3y = 1$,
 $x = 1 - y$ _____

2. $2x - y = 6$,
 $-x + y = -1$ _____

3. $6x - y = 3$,
 $4x - 2y = -2$ _____

4. $2x + 3y = 7$,
 $x = 1 - 4y$ _____

5. $2x + 3y = 6$,
 $x - 3y = -15$ _____

6. $7x - 5y = 4$,
 $y = 3x - 4$ _____

EXTRA PRACTICE 31 (continued)
Solving Systems of Linear Equations
Use after Sections 8.2 and 8.3

7. $2y - 5x = -1,$
 $x = 2y + 5$ _____

8. $4x + 3y = 1,$
 $3x + 5y = -13$ _____

9. $6x - 5y = 3,$
 $4x + 3y = 21$ _____

10. $x + y = 4,$
 $3x + 4y = 10$ _____

11. $-3x + y = 2,$
 $7x - 8y = 1$ _____

12. $7x + 2y = 2,$
 $x - 2y = 14$ _____

13. $9y - 2x = -7,$
 $x - 3y = 5$ _____

14. $3x - 5y = 8,$
 $4x - 7y = 12$ _____

15. $5x + 2y = 12,$
 $3x - 4y = 2$ _____

16. $x + 4y = 7,$
 $3x + 7y = 6$ _____

17. $5x - 8y = 25,$
 $-x + 4y = -7$ _____

18. $05x + 2y = 9,$
 $4x - 15y = 2$ _____

19. $8x - 6y = 0,$
 $x + 9y = \frac{13}{4}$ _____

20. $\frac{2}{3}x + \frac{1}{4}y = 18,$
 $\frac{1}{6}x - \frac{3}{8}y = -6$ _____