

Algebra Review: *Systems of Equations*

Solve each system of equations by the substitution method.

Example 1 (1) $y = 5 - 2x$
 (2) $5x - 6y = 21$

Solution Substitute $5 - 2x$ for y in (2): $5x - 6(5 - 2x) = 21$
 $17x - 30 = 21; x = 3$

Substitute 3 for x in (1): $y = 5 - 2(3) = -1$

The solution is $x = 3, y = -1$.

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| 1. $y = 3x$ $x = 3$
$5x + y = 24$ $y = 9$ | 2. $y = 2x + 5$ $x = 9$
$3x - y = 4$ $y = 23$ | 3. $x = 8 + 3y$ $x = -16$
$2x - 5y = 8$ $y = -8$ |
| 4. $3x + 2y = 71$ $x = 9$
$y = 4 + 2x$ $y = 22$ | 5. $4x - 5y = 92$ $x = 28$
$x = 7y$ $y = 4$ | 6. $y = 3x + 8$ $x = -4$
$x = y$ $y = -4$ |
| 7. $8x + 3y = 26$ $x = 1$
$2x = y - 4$ $y = 6$ | 8. $x - 7y = 13$ $x = 6$
$3x - 5y = 23$ $y = -1$ | 9. $3x + y = 19$ $x = 5$
$2x - 5y = -10$ $y = 4$ |

Solve each system by the method of addition or subtraction.

Example 2 (1) $3x - y = 13$
 (2) $4x + y = 22$

Solution Add (1) and (2):
 $7x = 35; x = 5$

Substitute 5 for x in (2):

$4(5) + y = 22; y = 2$

The solution is $x = 5, y = 2$.

Example 3 (1) $6x + 15y = 90$
 (2) $6x - 14y = 32$

Solution Subtract (2) from (1):
 $29y = 58; y = 2$

Substitute 2 for y in (1):

$6x + 15(2) = 90; x = 10$

The solution is $x = 10, y = 2$.

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| 10. $5x - y = 20$ $x = 4$
$3x + y = 12$ $y = 0$ | 11. $x + 3y = 7$ $x = -2$
$x + 2y = 4$ $y = 3$ | 12. $3x - 2y = 11$ $x = 1$
$3x - y = 7$ $y = -4$ |
| 13. $7x + y = 29$ $x = 4$
$5x + y = 21$ $y = 1$ | 14. $8x - y = 17$ $x = 2$
$6x + y = 11$ $y = -1$ | 15. $9x - 2y = 50$ $x = 6$
$6x - 2y = 32$ $y = 2$ |
| 16. $7y = 2x + 35$ $x = 0$
$3y = 2x + 15$ $y = 5$ | 17. $2y = 3x - 1$ $x = 11$
$2y = x + 21$ $y = 16$ | 18. $19 = 5x + 2y$ $x = 3$
$1 = 3x - 4y$ $y = 2$ |