

M10 - 9.2 - Don't/Need to Isolate Substitution Notes

Substitution - Don't Need to Isolate

(1) $x = (3 - y)$ (2) $2y - 2x = 10$

Identify equation # 1
 Identify equation # 2

Put Brackets around what $x =$ in eq. #1
 Put Brackets around x in eq. #2

(2) $2y - 2(x) = 10$
 $2y - 2(3 - y) = 10$
 $2y - 6 + 2y = 10$
 $4y - 6 = 10$
 $\quad +6 \quad +6$
 $4y = 16$

Substitute
 Distribute
 Combine Like Terms
 Solve

(1) $x = 3 - y$
 $x = 3 - (4)$

(2) $y = 4$

Substitute
 Solve

(1) $x = -1$
 (2) $(-1, 4)$

Intersection point

If a variable is already isolated go ahead and substitute what that variable equals into the other equation.

Substitution - Need to Isolate

(1) $x + y = 11$ (2) $2x - 2y = 6$

Identify equation # 1
 Identify equation # 2

Put Brackets around what $y =$ in eq. #1
 Put Brackets around y in eq. #2

(1) $x + y = 11$
 $-x \quad -x$
 $y = (11 - x)$

Isolate

(2) $2x - 2(y) = 6$
 $2x - 2(11 - x) = 6$
 $2x - 22 + 2x = 6$
 $4x - 22 = 6$
 $\quad +22 \quad +22$
 $4x = 28$
 $\frac{4x}{4} = \frac{28}{4}$

Substitute

(1) $y = 11 - x$
 $y = 11 - 7$

(2) $x = 7$

Solve
 Substitute
 Solve

(1) $y = 4$
 (2) $(4, 7)$

Intersection point: