Substitution Method

ex 1) $x + y = 18$
$y = 2x$

$x + 2x = 18$
$\frac{3x}{3} = \frac{18}{3}$
$x = 6$

$6 + y = 18$
$-6 \quad -6$
$y = 12$

or

$y = 2(6)$
$y = 12$

$(6, 12)$

ex 2) $3x + 4y = -2$
$y = 2x - 17$

Steps:

1. Make sure y is by itself for one of the equations

$2x - 17 = y$

2. Then substitute into the other equation and solve for x.

$3x + 4(2x - 17) = -2$
$3x + 8x - 68 = -2$
$+68 \quad +68$
$\frac{11x}{11} = \frac{66}{11}$
$x = 6$

3. Take your answer for x or y and sub into either equation to find the coordinate.

$2(6) - y = 17$
$12 - y = 17$
$12 - 17 = y$
$-5 = y$

or

$3(6) + 4y = -2$
$18 + 4y = -2$
$\frac{4y}{4} = \frac{-20}{4}$
$y = -5$

4. Write as a coordinate point together (x, y).

$(6, -5)$