We can again do it by substitution. I can solve for x in the second equation

$$-x = 2 - 5y$$

$$x = -2 + 5y$$ Now substitute this expression in the 1st and 3rd equations.

1st eqn: $3(-2+5y) + 2y = 5 \Rightarrow -6 + 15y + 2y = 5 \Rightarrow 17y = 11$

3rd eqn: $2(-2+5y) + 7y = 3 \Rightarrow -4 + 10y + 7y = 3 \Rightarrow 17y = 7$

Contradiction $\Rightarrow$ It is an inconsistent system.

Here the three lines intersect at 3 points forming a triangle.

Example

$$2x + 3y = 1$$
$$-4x - 6y = 3$$
$$3x + 2y = 5$$

Again by substitution, let's solve for x in the first equation

$2x = 1 - 3y \Rightarrow x = \frac{1}{2}(1 - 3y) \Rightarrow x = \frac{1}{2} - \frac{3}{2}y$

Putting it in the 2nd equation

$-4\left(\frac{1}{2} - \frac{3}{2}y\right) - 6y = -2 + 6y - 6y = 3$

$-2 + 0y = 3$

$-2 = 3$ Contradiction

We have an inconsistent system.

The first 2 lines are // and the third one intersects both of them at 2 different points