

# M10 - 9.5 - Multiply/Fraction/Decimal Elimination Notes

## Solving a system of equations using elimination

①  $2x - 3y = 2$

②  $x + 2y = 8$

Identify equation # 1

Identify equation # 2

$$\begin{array}{r} 2x - 3y = 2 \\ -(2x + 4y = 16) \\ \hline 0x - 7y = -14 \end{array}$$

$$-\frac{7y}{-7} = -\frac{14}{-7}$$

$y = 2$

②  $2(x + 2y = 8)$   
 $2x + 4y = 16$

Multiply equation #2 by 2

Line up equations

Subtract equations to eliminate x

②  $x + 2y = 8$   
 $x + 2(2) = 8$   
 $x + 4 = 8$

Solve

Substitute

$x = 4$

Solve

$(4, 2)$

Intersection point:

## Solving a system of equations using elimination

①  $3y + x = 4$

②  $0.5y + \frac{x}{3} = 3$   
 $\frac{1}{2}y + \frac{x}{3} = 3$

Identify equation # 1

Identify equation # 2

Get Rid of Decimals

$$\begin{array}{r} 3y + x = 4 \\ -(3y + 2x = 18) \\ \hline -x = -14 \\ x = 14 \end{array}$$

②  $(\frac{y}{2} + \frac{x}{3} = 3) \times 6$   
 $3y + 2x = 18$

Multiply equation #2 by 6 (LCD)

To get rid of denominator

Subtract equations to eliminate x

Solve

②  $3y + 2x = 18$   
 $3y + 2(14) = 18$   
 $3y + 28 = 18$   
 $3y = 18 - 28$   
 $3y = -10$   
 $\frac{3y}{3} = -\frac{10}{3}$

Substitute

$y = -\frac{10}{3}$

Solve

$(14, -\frac{10}{3})$

Intersection point: