$$\begin{array}{r} 5a+2b=23 \\ +\ 7a-2b=13 \\ \hline 12a \quad =36 \end{array}$$

$\frac{12a}{12}=\frac{36}{12}$

$a=3$

Need a new method

We can combine equations

$5(3)+2b=23$

$-15 \quad -15$

$\frac{2b}{2}=\frac{8}{2}$

$b=4$

(a,b)

$(3,4)$

Adding / Subtracting to solve systems

$$\begin{array}{r} 3x-4y=10 \\ +\ 2x+4y=5 \\ \hline 5x \quad =15 \end{array}$$

$\frac{5x}{5}=\frac{15}{5}$

$x=3$

$(3,-\frac{1}{4})$

$3(3)-4y=10$

$-9 \quad -9$

$-4y=1$

$y=-\frac{1}{4}$

$2(3)+4y=5$

$-6 \quad -6$

$4y=-1$

$y=-\frac{1}{4}$

$$\begin{array}{r} 2x+3y=5 \\ +\ (2x+y=3)\times -1 \\ \hline 4x+4y=8 \end{array}$$

$$\begin{array}{r} 2x+3y=5 \\ -2x-y=-3 \\ \hline 2y=2 \end{array}$$

$y=1$

Sometimes we need to change one of the equations

$2x+1=3$

$2x=2$

$x=1$

$(1,1)$

$4x+2y=5$

$2(3x-y=5)$

$$\begin{array}{r} 4x+2y=5 \\ 6x-2y=10 \\ \hline 10x \quad =15 \end{array}$$

$x=\frac{15}{10}=\frac{3}{2}$

$4(\frac{3}{2})+2y=5$

$6+2y=5$

$-6 \quad -6$

$2y=-1$

$y=-\frac{1}{2}$

$(\frac{3}{2},-\frac{1}{2})$

$3(2x+2y=9)$ We change

$2(5x-3y=-2)$ both to get rid of one variable

$$\begin{array}{r} 6x+6y=27 \\ 10x-6y=-4 \\ \hline 16x \quad =23 \end{array}$$

$x=\frac{23}{16}$

$(\frac{23}{16},\frac{49}{16})$

$2(\frac{23}{16})+2y=9$

$2(23)+32y=144$

$46+32y=144$

$32y=98$

$y=\frac{98}{32}=\frac{49}{16}$

$$\begin{array}{r} 2x + 3y = 9 \\ -2x - 3y = 18 \\ \hline 0 = 27 \end{array}$$

Parallel lines don't work for Linear combination

2 - 14 even

	P	f
canned	8c	3c
dry	6d	1d
	46	11