Warm-Up:

Solve the following system of equations:

$$\frac{a}{2}+\frac{b}{3}=1$$

$$\frac{a}{4}-\frac{2b}{3}=-1$$

graphing
substitution
elimination
Methods

$6\left(\frac{a}{2}+\frac{b}{3}=1\right) \rightarrow 3a+2b=6$

$3a+2b=6$

$3a-8b=-12$

$\rightarrow 3a-8b=-12$

① − ②

$10b=18$

$\frac{10b}{10}=\frac{18}{10}$

$b=\frac{9}{5}$

sub.

$3a+2\left(\frac{9}{5}\right)=6$

$15a+18=30$

$\frac{15a}{15}=\frac{12}{15}$

$a=\frac{4}{5}$

$\left(\frac{4}{5}, \frac{9}{5}\right)$

$-23-10y=9x$

$-30-15y=15x$

Solve Twice ...

(1) elimination

(2) substitution

$(3,-5)$

ELIMINATION

$$\begin{cases} 9x+10y=-23 \quad (\times 3) \\ 15x+15y=-30 \quad (\times 2) \end{cases}$$

$27x+30y=-69$

$30x+30y=-60$

$-3x=-9$

$\frac{-3x}{-3}=\frac{-9}{-3}$

$x=3$ $\longrightarrow$ $-23-10y=9(3)$

$-23-10y=27$

$\frac{-10y}{-10}=\frac{50}{-10}$

$y=-5$

$\boxed{(3,-5)}$

$-23-10y=9x$

$\frac{-30}{-15}-\frac{15}{-15}y=\frac{15}{-15}x \rightarrow 2+y=-x$

$y=-x-2$

SUBSTITUTION:

$\rightarrow \frac{-23-10y}{9}=x$

$(9)-30-15y=15\left(\frac{-23-10y}{9}\right)(9)$

$-270-135y=-345-150y$

$-135y+150y=-345+270$

$\frac{15y}{15}=\frac{-75}{15}$

$y=-5$

$x=\frac{-23-10(-5)}{9}$

$x=\frac{27}{9}$

$x=3$

Homework...

- Solve AT LEAST 3 more systems from the practice sheet

- Attempt Bonus problem

Bonus... [5 Marks]

Solve the following system of equations algebraically:

$$x - y = z - 2$$
$$3y + z = 3 - 2x$$
$$5x + 1 = 2y + 2z$$