Panel 1 (top left)

Solve this system of equations using Elmination.

$3(5Q + 9R = 43)$

$15Q - 6R = 63$

$2(5Q + 9R = 43)$

$3(15Q - 6R = 63)$

$15Q + 27R = 129$
$-15Q - 6R = 63$

$33R = 66$

$R = 2$

$(5, 2)$

$10Q + 18R = 86$
$+ 45Q - 18R = 189$

$55Q = 275$

$Q = 5$

Panel 2 (top right)

Solve this system of equations using Elmination.

$4(7c - 3d = -3)$

$3(6c + 4d = 27)$

$28c - 12d = -12$
$+ \quad 18c + 12d = 81$

$\dfrac{46c}{46} = \dfrac{69}{46}$

$c = 1.5$

$6(1.5) + 4d = 27$

$9 + 4d = 27$
$-9 \qquad -9$

$\dfrac{4d}{4} = \dfrac{18}{4} \Rightarrow d = 4.5$

$(1.5, 4.5)$

Panel 3 (bottom left)

Solve this system of equations using Elmination.

$3(4X - 6Y = 66)$

$2(6X - 9Y = -45)$

$12x - 18y = 198$
$- \quad 12x - 18y = -90$

$0 = 288$

NO SOL

Panel 4 (bottom right)

Solve this system of equations using Elmination.

First eliminate all denominators by using the LCM of the two denominators in each equation.

$12\left(\dfrac{2x}{3} + \dfrac{7y}{12} = 26\right)$

$18\left(\dfrac{4x}{9} - \dfrac{5y}{6} = -12\right)$

$8x + 7y = 312$

$-8x - 15y = 216$

$\dfrac{22y}{22} = \dfrac{528}{22}$

$y = 24$

$\dfrac{4x}{9} - \dfrac{5}{6}(24) = -12$

$\dfrac{4}{9}x - 20 = -12$
$\qquad +20 \quad +20$

$\dfrac{9}{4} \cdot \dfrac{4}{9}x = 8 \cdot \dfrac{9}{4}$

$X = 18$

$(18, 24)$

On a farm the only animals are cows and chickens. There are a total of 72 animals. These animals have a total of 228 legs.

How many chickens and how many cows are there?

$2(C + H = 72)$

$4C + 2H = 228$

$\rightarrow 2C + 2H = 144$

$$\frac{2C}{2} = \frac{84}{2}$$

$C = 42$

$42 = C = \#\text{ cows}$

$30 = H = \#\text{ chickens}$

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pick any coefficients for x and y that you want.
Then replace x with -8 and y with 10 to find the constant.

$21x - 14y = 21(-8) - 14(10) \rightarrow 21x - 14y = -308$

$15x + 30y = 15(-8) + 30(10) \rightarrow 15x + 30y = 180$

Suppose you didn't know how to solve a system of equations using Substitution, how would you solve this system of equations using Elimination?

$y = 4x + 21$ $3x + 8y = -7$

$-4x \quad -4x \longrightarrow -4x + y = 21$

Multiply second equation by 8 and subtract.

$\boxed{(-5, 1)}$

$3x + 8y = -7$

$- \quad -32x + 8y = 168$

$$\frac{35x}{35} = \frac{-175}{35} \quad x = -5$$

NOW FIND Y $\rightarrow$ $y = 4(-5) + 21 = -20 + 21$

$y = 1$