Panel 1 (top-left)

On Mr. Brown's farm there are only turkeys and pigs. One day he started counting and found out that there were a total 45 heads and 130 legs amongst the animals.

Write and solve a system of equations to find the number of each kind of animal on Mr. Brown's farm.

$t = $ # of turkeys
$p = $ # of pigs

$(t + p = 45)2$
$2t + 4p = 130$

$2t + 2p = 90$
$-\ 2t + 4p = 130$
$0 + -2p = -40$
$\dfrac{}{-2}$
$p = 20$

$t + 20 = 45$
$-20 \quad -20$
$t = 25$

There are 20 pigs and 25 turkeys

Panel 2 (top-right)

You have only nickels and dimes in your piggy bank. One day you dumped out all the coins and found out that there were 75 coins that added up to $5.40.
Find the number of dimes and nickels that were in your piggy bank.

$d = $ # dimes
$N = $ # Nickels

$d + N = 75 \longrightarrow d = 75 - N$

$0.10d + 0.05N = 5.40$

Substitution or Elimination would work

$0.10(75 - N) + 0.05N = 5.40$

$7.5 - 0.10N + 0.05N = 5.40$

$7.5 - 0.05N = 5.40$
$-7.5 \qquad\qquad -7.5$
$-0.05N = -2.1$
$\dfrac{-0.05N}{-0.05} = \dfrac{-2.1}{-0.05}$
$N = 42$

$d = 75 - 42$
$d = 33$

There must be 33 Dimes and 42 Nickels

Panel 3 (bottom-left)

Solve.   Could you use substitution?

$6x + 2y = -14$

$8x - 17y = 119$

Yes. It would be easier to solve the top equation for y since all the numbers in the equation are even.

$y = \dfrac{-14 - 6x}{2} = -7 - 3x$

You can now subsitute this into the second equation and then finish solving for both x and y.

Panel 4 (bottom-right)

Solve.   Could you use elimination?

$y = 2x - 14$

$-\ \ y = -3x + 16$

$0 = 5x - 30$

Yes. At this poiht you could just subtract the two equations and the y's would be eliminated. You could then finish solving for x and y.

Solve. $3(-6x + 4y = 36)$ → $-18x + 12y = 108$

$2(9x - 6y = 96)$ → $+$ $18x - 12y = 192$

$$0 = 300$$

This is not true so there is
NO SOLUTION

If you had changed both equations into Slope-
Intercept Form you would have noticed that
the lines were parallel.