

Answer on Question # 42728 – Math - Algebra

Simultaneous equation $x-y=-3$ and $x^2-y=9$.

Solution:

Let's find x and y.

$$\begin{cases} x - y = -3 \\ x^2 - y = 9 \end{cases}$$

Let's express x from first expression, and put it in second expression.

$$\begin{cases} x = y - 3 \\ (y - 3)^2 - y = 9 \end{cases}$$

Let's open brackets.

$$\begin{cases} x = y - 3 \\ y^2 - 6 * y + 9 - y = 9 \end{cases}$$

We can get such expression $y^2 - 6 * y + 9 - y = 9$, let's simplify it.

$$y^2 - 7 * y = 0$$

$$y(y - 7) = 0$$

From here: $y = 0$ and $y = 7$.

Now we know y, we can find x $\Rightarrow x = -3$ and $x = 4$.

Answer: Pairs of variables $(-3, 0)$ and $(4, 7)$ will be solution of simultaneous equation.