

Answer on question #44539 – Math - Linear Algebra

Obtain the solution set of the system $x - 3y + 4z = 9$, $4x + 3y + 2z = 7$, $y - 2x = 5 - 10z$ by elimination.

Solution :

$$x - 3y + 4z = 9 \quad (1)$$

$$4x + 3y + 2z = 7 \quad (2)$$

$$-2x + y + 10z = 5 \quad (3)$$

$$(1) + (3) :$$

$$5x + 6z = 16 \quad (4)$$

$$(1) + 3*(3) :$$

$$-5x + 34z = 24 \quad (5)$$

$$(5) + (4) :$$

$$40z = 40 \Leftrightarrow z = 1 \quad (6)$$

$$(4) - 6*(6) :$$

$$5x = 10 \Leftrightarrow x = 2 \quad (7)$$

$$(1) - (7) - 4*(6) :$$

$$-3y = 9 - 2 - 4 \Leftrightarrow y = -1.$$

Answer: $x = 2$, $y = -1$, $z = 1$.