Answer on Question 45146, Math, Linear Algebra

$$a + 2b + 3c = 5$$

$$3a - b + 2c = 8$$

$$4a - 6b - 4c = 2$$

from second equation $b = 3a + 2c - 8$. Then we can substitute to the first and third equations. We wil get

$$a + 2(3a + 2c - 8) + 3c = 5$$

$$4a - 6(3a + 2c - 8) - 4c = 2$$

We can rewrite:

$$a + 6a + 4c - 16 + 3c = 5$$

$$4a - 18a - 12c + 48 - 4c = 2$$

Or:

$$7a + 7c = 21$$

$$14a + 16c = 46$$

From first we get $a + c = 3$ so $a = 3 - c$ and from the last equation $14(3 - c) + 16c = 46$ Then $42 - 14c + 16c = 46$ and finaly $2c = 4$ so $c = 2$ Then $a = 3 - c = 1$, $b = 3a + 2c - 8 = 7 - 8 = -1$
Solution $a = 1, b = -1, c = 2$.