Get x by itself?!

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Due Nov. 8.

1. Write a short essay 1/2 page – basically a script for explaining to 9th graders the solution of the problem.

$$5x + 9 = 24.$$

2. A student tries to solve the following problem.

$$5x + \frac{9}{16} = 4.$$

He thinks, 'first, I have to get the x by itself by putting the $\frac{9}{16}$ on the other side and changing its sign' and writes:

$$5x = 4 - \frac{9}{16}.$$

$$5x = -\frac{5}{16}.$$

$$x = \frac{1}{16}.$$

What can be done about this? How do you explain to 9th graders the solution of the problem

$$5x + \frac{9}{16} = 4$$

without having to adding or subtract fractions.

3. A student writes the following answer to the problem: solve

$$x^2 + 2x - 5 = 0$$

with explanation that I wanted to get the x by itself.

$$x^2 = 5 - 2x$$

$$x = \sqrt{5 - 2x}$$

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$$3x = \sqrt{5}$$
$$x = \sqrt{5}/3$$

How would you counsel this student?