

How to solve for x

You have the expression $6x+5=17$

To solve for x, subtract 5 from both sides to leave x by itself.

$$6x+5-5=17-5$$

$$6x=12$$

Now just divide both sides by 6 to get x.

$$\frac{6x}{6} = \frac{12}{6} \rightarrow x=2$$

To solve x in this form:

$$5x+2x=21$$

Since there are more than 1 x, you can join them like if you have more than 1 number:

$$2+3=5$$

$$5+2=7 \text{ so } 7x=21$$

Just like the first problem, divide both sides by 7:

$$\frac{7x}{7} = \frac{21}{7} \rightarrow x=3$$

x's in both sides:

$$2x+4=4x-6$$

first find the side with the smaller x, which in this case is 2x

then bring it to the other side.

$$4=4x-2x-6$$

$$4=2x-6$$

now bring the number on the side of the x to the other side.

$$4+6=2x$$

$$10=2x$$

$$x=5$$

Solving for x Part 2

Fractions: The same things apply to fractions, just know how to add, subtract, multiply, and divide.

$$\frac{1}{3}x + \frac{2}{5} = \frac{6}{7}$$

subtract $\frac{2}{5}$ to the other side

$$\frac{1}{3}x = \frac{6}{7} - \frac{2}{5} \quad \text{subtract. the gcd is 1 so multiply the denominators}$$

$$\frac{1}{3}x = \frac{30}{35} - \frac{14}{35} \quad \text{and } 30 - 14 = 16$$

$$\frac{1}{3}x = \frac{16}{35}$$

multiply both sides by 3 to get rid of $\frac{1}{3}$

$$\begin{pmatrix} 3 \\ 1 \end{pmatrix} \cdot \frac{1}{3}x = \frac{16}{35} \cdot \begin{pmatrix} 3 \\ 1 \end{pmatrix} \rightarrow \frac{16 \cdot 3}{35 \cdot 1} = \frac{48}{35}$$

$$x = \frac{48}{35}$$

Solving for x Part 3

To solve for x in the following form: $x^2+bx+c=0$

The following example: $x^2+9x+20=0$

Step 1: find 2 numbers that add up to b , but also multiply to c

5 and 4 add to 9 and multiply to 20

Step 2: put in parenthesis

$$(x+5)(x+4)=0$$

Step 3: switch signs

$$x=-5$$

$$x=-4$$

$$3(2x+3)=21$$

Method 1:

$$3 \cdot 2x + 3 \cdot 3 = 21$$

$$6x + 9 = 21$$

$$6x = 12 \rightarrow x = 2$$

Method 2:

$$\frac{3(2x+3)}{3} = \frac{21}{3}$$

$$2x+3=7$$

$$2x=4 \rightarrow x=2$$