CASIO
eLearning Activities

Solve Multistep Equations

There are lots of ways to solve equations, most of which use the balancing sides techniques. Here is another way to solve an equation using the Casio graphing calculator

1. Start with a familiar approach so you will have something to verify your new solution methods . Solve the following equation by paper and pencil balancing sides method.
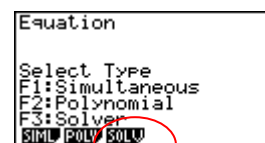
use either method

$3x + 4 = 19$
$3x + 4 - 4 = 19 - 4$ **(subtract 4 from both sides)**
$3x = 15$
$x = 5$ **(divide both sides by 3)**

$3x + 4 = 19$
$\quad -4 \quad\quad -4$
$3x \quad = 15$
$\quad x \quad\quad = 5$

2. Now solve it on the calculator by using the "**Equation**" menu.
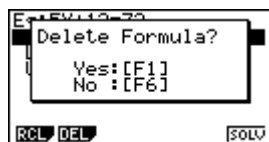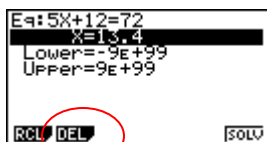   a. On the menu screen, highlight "Equation" by using the arrow key blue button and then press Execute.

You will see this screen next.

b. Click on the "SOLV" word.

c. If there is already something written on the screen, click on the word DEL on the screen, then press F1 right under the word YES. This will clear the information shown.

d. Enter the equation. Use f for the variable. 3x + 4 = 19 and press Execute.

e. Now press F6 right under the word Solv(e).. Key strokes are shown below. **Be sure to press F6 to get the answer.** You may see another solution value for *x,* but ignore that one until you press F6. (That value is the answer to a previous problem.) **Key strokes:**3f+4L.19lu
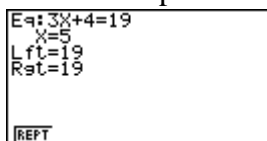
f. The solution for *x* is shown, and the value of the left and right sides of the equation are given for the *x* value substituted in for the variable

g. Press Exit to return to the beginning of the solution process. Then delete what's there.

Try these problems using the calculator to help you. Remember to delete each problem after you have solved it.

1. $5x - 12 = 28$
   $x =$

5. $8x + 9 = 33$
   $x =$

9. $11 - 3x = 48$
   $x =$

2. $-7x - 10 = 46$
   $x =$

6. $16 = 3x + 4$
   $x =$

10. $10x + 9 = 14$
   $x =$

3. $17 + 8x = 30$
   $x =$

7. $12x + 9 = -24$
   $x =$

11. $5 - 3x = -15$
   $x =$

4. $6.2x - 1.4 = 3.87$
   $x =$

8. $-6.2x + 11.4 = 25$
   $x =$

12. $7x - 8.4 = 1.4$
   $x =$

Now try to solve these using the same method but with variables on both sides.

13. $4x - 5 = x + 7$
   $x =$

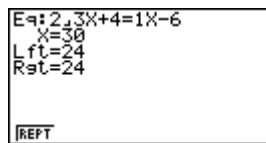15. $5x + 9 = 3x - 17$
   $x =$

17. $2x + 8 = 9x - 13$
   $x =$

14. $6x + 3 = -2x + 35$
   $x =$

16. $-5x - 4 = 4x + 32$
   $x =$

18. $7x - 8 = 2x - 33$
   $x =$

Use the z button to enter fractions and solve these problems. An example is given below.

Solve $\frac{2}{3}x + 4 = \frac{1}{2}x - 6$. Delete the previous problem. Now enter the problem as shown by the key strokes below. **Key strokes:** `2z3f+4L.1f-6lu`

```
Eq:2,3X+4=1X-6
  X=30
Lft=24
Rst=24


REPT
```

19. $\frac{3}{4}x + 5 = 2x - 6$

   $x =$

21. $\frac{2}{5}x - 4 = \frac{1}{2}x + 2$

   $x =$

22. $\frac{3}{7}x + 3 = 2x - 8$

   $x =$

20. $5x - \frac{5}{8} = \frac{2}{3}x + 1$

   $x =$

22. $\frac{4}{5}x + 6 = \frac{1}{3}x + 3$

   $x =$

24. $\frac{1}{4}x - 8 = \frac{2}{5}x + 5$

   $x =$