

Algebra II

The 7 Methods

Guess :

In this method you cover the variable part of the equation and ask what needs to hold this place to make the sentence True. In:

$10 + \frac{2}{3}t = 6$ we cover the $\frac{2}{3}t$ part and look at $10 + \underline{\quad} = 6$. This means that we

need $\underline{\quad}$ to be - 4. This means that $\frac{2}{3}t = -4$. Repeating the process we need

to ask what number is needed in the following sentence: $\frac{2}{3} * \frac{3}{1} \underline{\quad} = -4$. So

we need a - 2 to get the - 4. So $t = - 2 * 3$ or $- 6$.

Solver :

Press $\left[\text{MATH} \right]$ and move up or down (\uparrow \downarrow) to get to the 0:Solver... option on the MATH Menu. Press $\left[\text{ENTER} \right]$ to select and if the area is not clear, press $\left[\text{CLEAR} \right]$ to get a starting place.

```

MATH NUM CPX PRB
1: ▸Frac
2: ▸Dec
3: 3
4: ∫(
5: *∫
6: fMin(
7: ↓fMax(
    
```

```

MATH NUM CPX PRB
4: ↑∫(
5: *∫
6: fMin(
7: fMax(
8: nDeriv(
9: fnInt(
0: Solver...
    
```

```

L*W-A=0
L=5
W=7
A=11
bound={-1E99, 1...
    
```

```

EQUATION SOLVER
eqn: 0=
    
```

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For the sentence: $-27 = 12w + 27$ we key in

```
EQUATION SOLVER
eqn: 0 = (-27) - (12W
+27)
```

using parentheses for each side of the equation. Place a guess on the line for the variable. Then press **f** [SOLVE] to get the answer. Look for the bullet and don't forget to round.

```
(-27) - (12W + 27) = 0
W = 7
bound = (-1E99, 1...
```

```
(-27) - (12W + 27) = 0
▪ W = -4.5
bound = (-1E99, 1...
▪ left-rt = 0
```

Graph Intersect:

Press **o** and place the left side of the sentence on Y_1 and the right side on Y_2 . Using Bubble Baby and Dolciani [**q** ,] Look for the place where the two lines cross (intersect). You might have to adjust the Window to see the intersection. For this sentence $0.7(5a - 1.2) = 2a - 0.39$ we replace the a with x and key in the following:

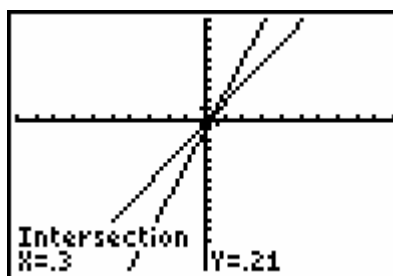
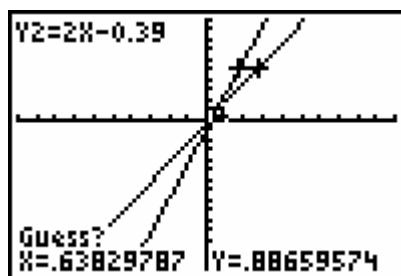
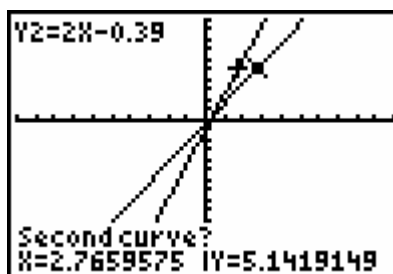
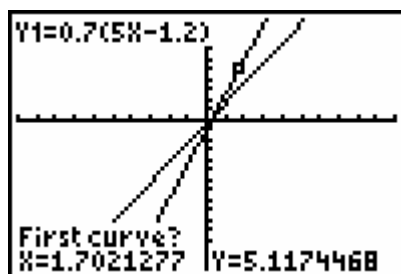
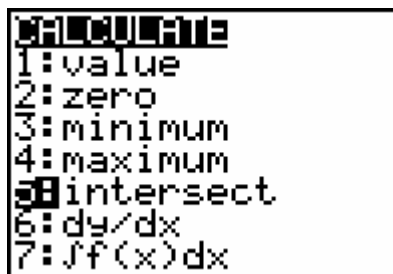
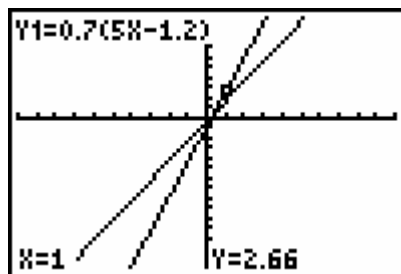
```
Plot1 Plot2 Plot3
0Y1 0.7(5X-1.2)
0Y2 2X-0.39
\Y3 =
\Y4 =
\Y5 =
\Y6 =
\Y7 =
```

```
MEMORY
1: ZBox
2: Zoom In
3: Zoom Out
4: ZDecimal
5: ZSquare
6: ZStandard
7: ZTrig
```

If you can **r** and then guess the location, do that, but if you can't, press **y** [CALC] and find the actual intersection.

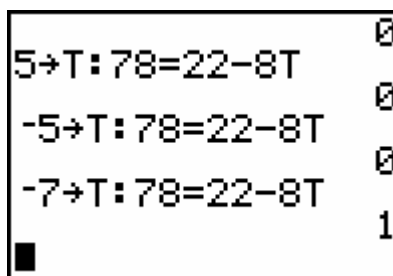
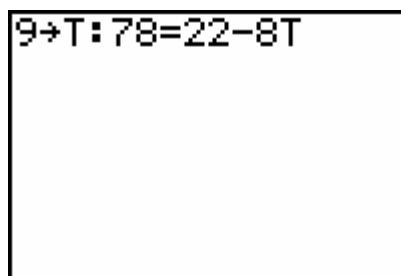
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Substitution/Logic:

In this method, just place a value in for the variable and then key in the sentence using a colon to separate the two commands. Keep trying until you get the Truth (1). For $78 = 22 - 8t$ we have:



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Table:

Start this method like the Intersection, but then you will set up your Table as shown below. Press **y** [TBLSET] and then **y** [TABLE] to see the Table. For the sentence $4y - 21 = 9y - 16$ we have:

Plot1	Plot2	Plot3
0Y1	4X-21	
0Y2	9X-16	
\Y3=		
\Y4=		
\Y5=		
\Y6=		
\Y7=		

TABLE SETUP		
TblStart=	-10	
ΔTbl=	1	
Indent:	Auto	Ask
Depend:	Auto	Ask

Looking for the value of x that makes the two functions equal, we have:

X	Y1	Y2
-10	-61	-106
-9	-57	-97
-8	-53	-88
-7	-49	-79
-6	-45	-70
-5	-41	-61
-4	-37	-52

X = -10

X	Y1	Y2
-7	-49	-79
-6	-45	-70
-5	-41	-61
-4	-37	-52
-3	-33	-43
-2	-29	-34
-1	-25	-25

X = -1

By Hand:

For the following sentence we will just do the traditional algebraic manipulation trying to get the variable isolated with a coefficient of 1.

$$5x - 7 = x + 9$$

$$5x - 7 - x = x + 9 - x$$

$$4x - 7 = 9$$

$$4x - 7 + 7 = 9 + 7$$

$$4x = 16$$

$$\frac{4x}{4} = \frac{16}{4}$$

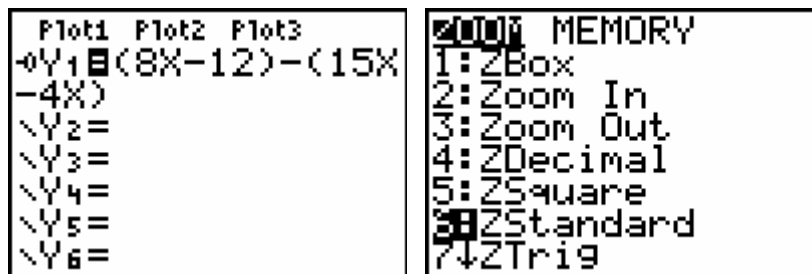
$$x = 4$$

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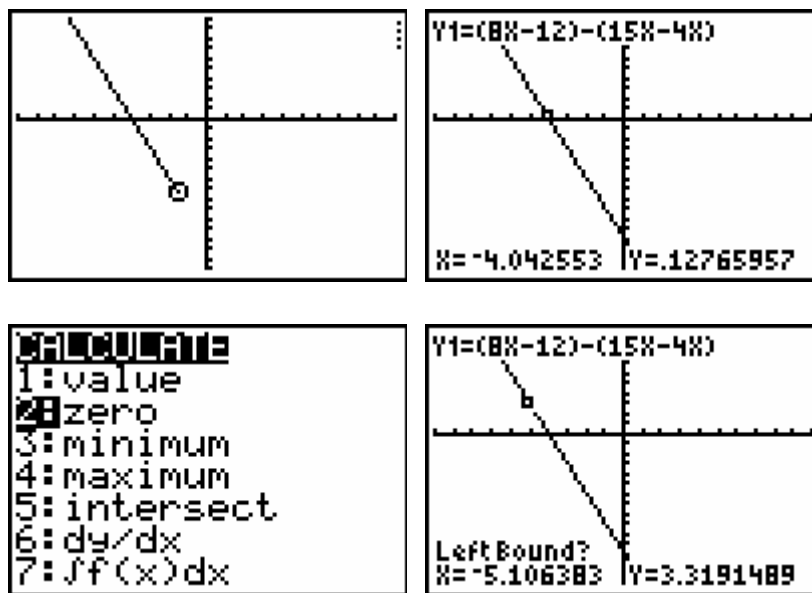
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Zero:

This starts like Solver but on the \circ editor. For $8x - 12 = 15x - 4x$ we have:



We are looking for the place where the line crosses the x-axis (where $y = 0$). You can trace and guess the value, or use the Zero option off of the CALCULATE Menu (Press y [CALC] \bar{A}).



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