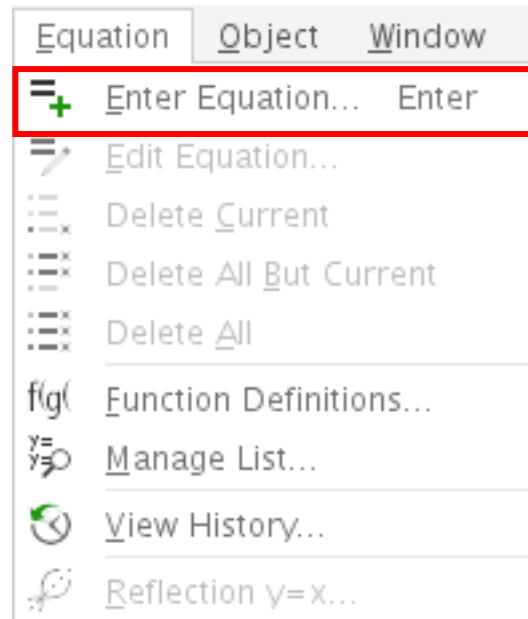


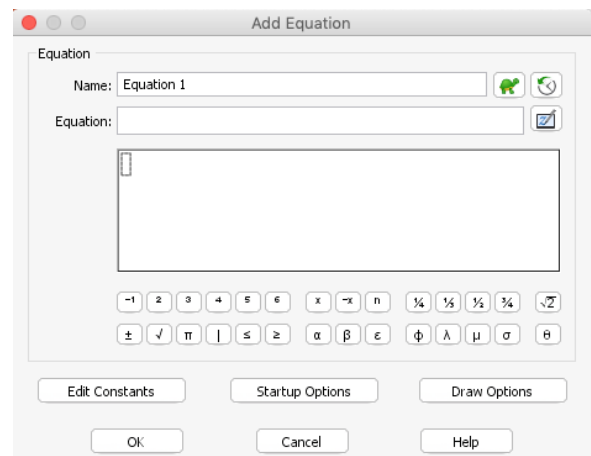
1. We want to create a graph of the form  $x = a$

From the top toolbar select **Equation** and then select **Enter Equation**



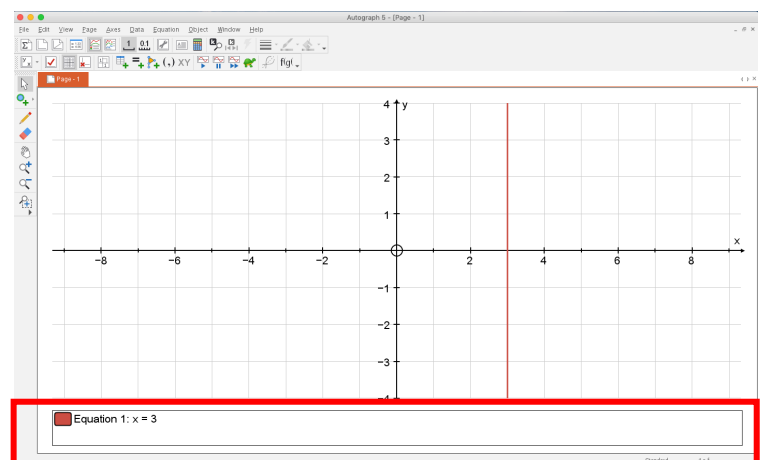
2. The Add Equation dialog box will open. In the Equation line enter  $x = 3$

And click ok.



3. The graph of  $x = 3$  will be displayed.

You will see that the equation  $x = 3$  is displayed in the results box.

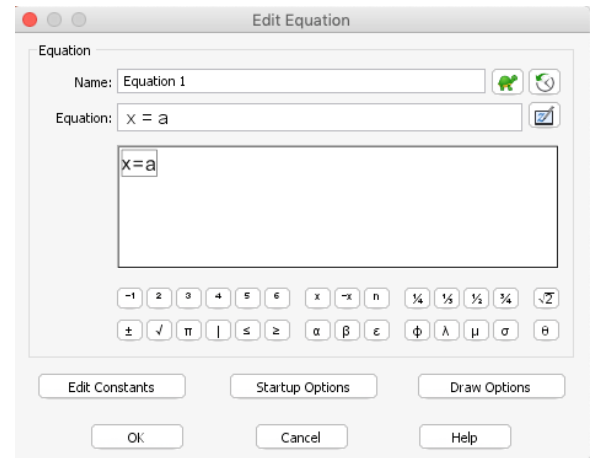


4. To change the graph of  $x = 3$ ,

double click in the results box and the Edit Equation dialog box will be displayed.

You can now change this to be  $x = a$

Click ok.



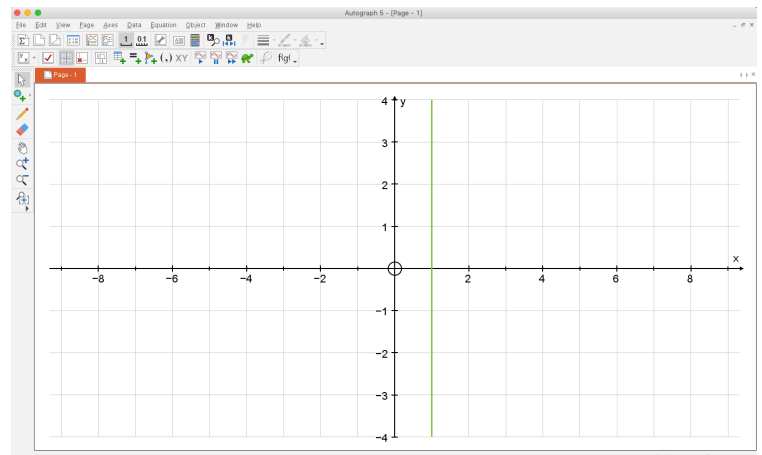
5.  $x = a$  will be displayed in the results box.

You will notice that the line is drawn at:

$x = 1$

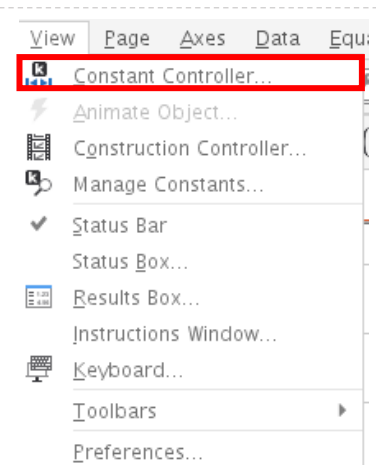
This is because the constant controller knows the initial value for  $a$  as  $a = 1$ .

We will look at changing this value.



6. Click **View** from the top toolbar

Select **Constant Controller...**



7. Click **view** from the top toolbar

Select **Constant Controller...**



The constant controller dialog box will open. You can select the constant that you want to change.



The left/right arrows change the step with which the variable will be changed. For example, 0.1, 1, 10, 100, 1000 etc



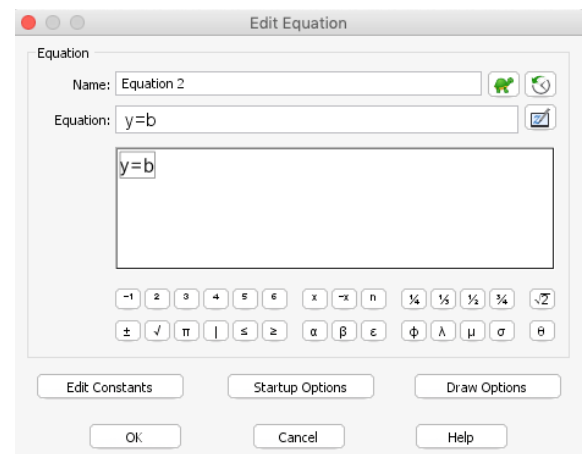
The Up/Down arrows change the variable by the selected step.



1. We want to create a graph of the form  $y = b$

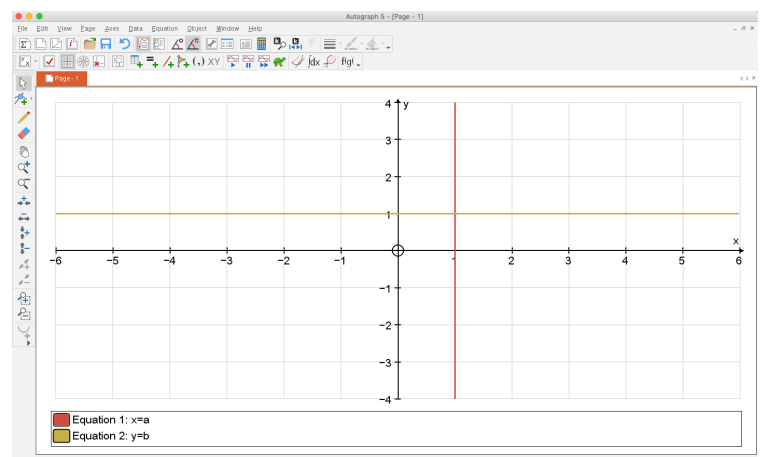
From the top toolbar select **Equation** and then select **Enter Equation**

You should note that this will get added to the results box.



2. We can change the value of  $y = b$   
Using the Constant Controller.

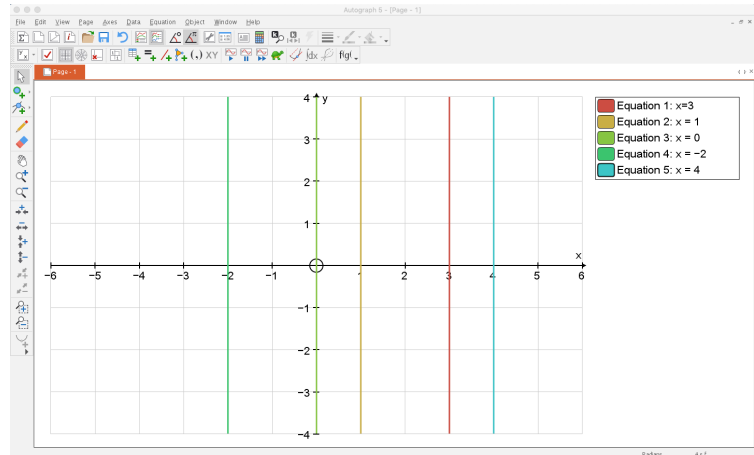
The default value for  $b$  is 1, so the graph  $y = 1$  will be displayed.



### 1. Create the following graphs of the form

**$x =$**

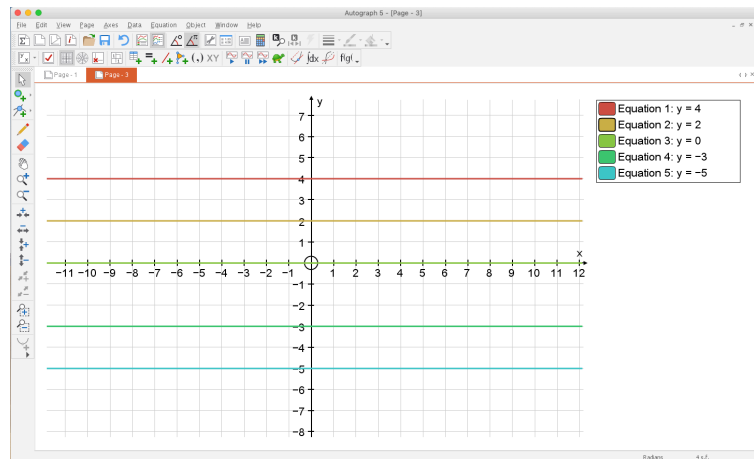
- $x = 3$
- $x = 1$
- $x = 0$
- $x = -2$
- $x = 4$



### 2. Create the following graphs of the form

**$y =$**

- $y = 4$
- $y = 2$
- $y = 0$
- $y = -3$
- $y = 5$



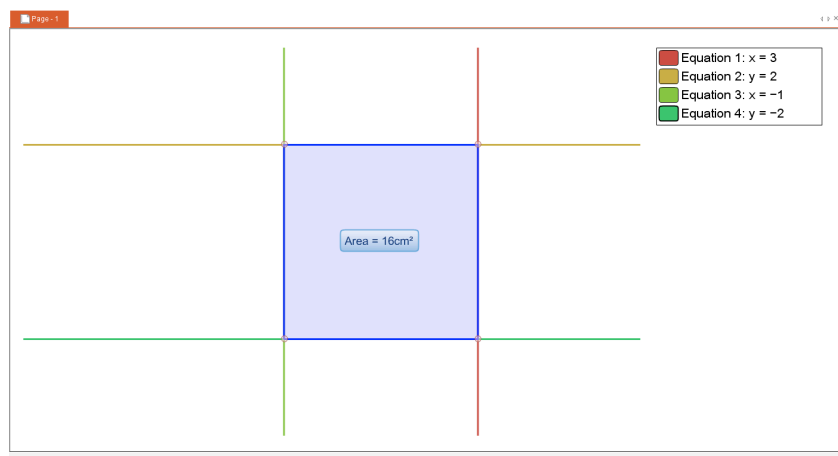
### 3. Create the following graphs of the form

**$x = \text{ and } y =$**

- $x = 3$
- $y = 2$
- $x = -1$
- $y = -2$

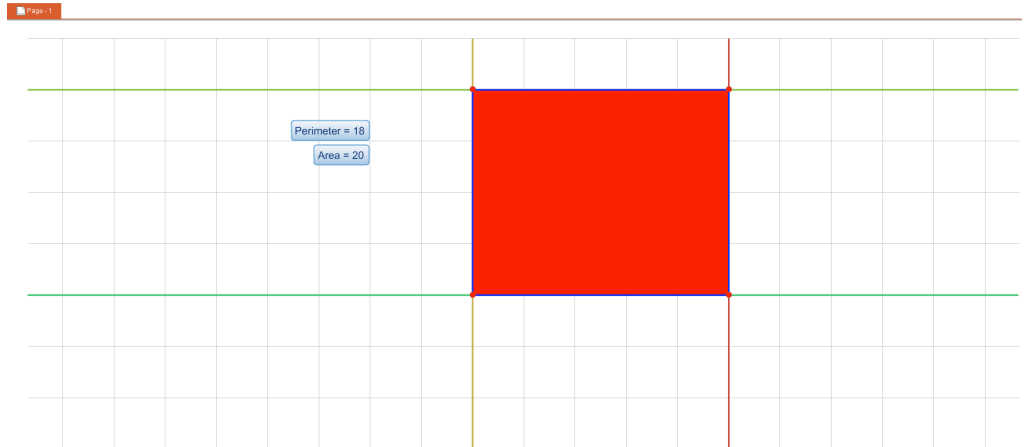
When you have created your lines,

- Create the intersection points
- Group to shape.
- Calculate the area.
- Remove the grid.
- Display results box to right hand side.



### 4. Create the following graphs of the form

$$\begin{aligned}x &= a \\x &= b \\y &= c \\y &= d\end{aligned}$$



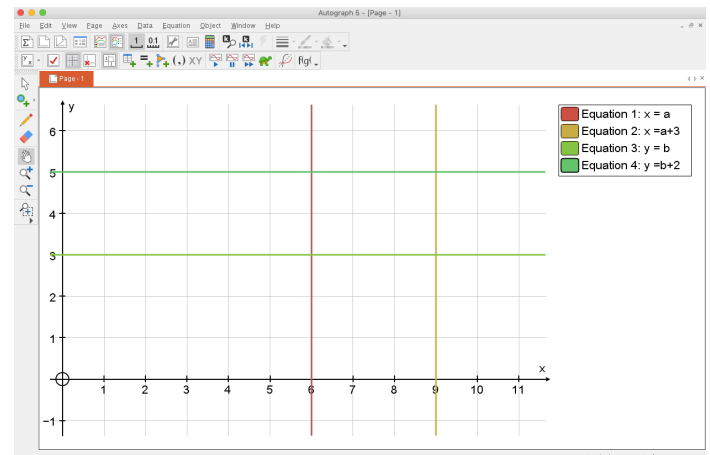
Create the intersections.  
Group to a shape.  
Change the colour of the shape.  
Calculate Area and Perimeter.

### 5. Create the following graphs of the form

$$\begin{aligned}x &= a \\x &= a+3 \\y &= b \\y &= b+2\end{aligned}$$

Change a and b to create the graph

Move the Results box and allow 4 entries



### 6. Create other graphs of the form $x = a$ and $y = b$

What other interesting graphs can you produce?