Using Code to Draw Triangles
 on the Cartesian Plane

**Algebra**

**Unit 3 Line Master 4a**

Let’s draw a triangle in Scratch by plotting and joining 3 points
on a Cartesian plane.

Go to this application that has been premade in Scratch:

<https://scratch.mit.edu/projects/740509372/editor>

You will see the following code:



 If you have a Scratch login,
 save the project in your Scratch
 account by selecting **Remix**
 at the top of the screen.

 A login is not required to work with
 the code, but you will not be able to
 save your changes without it.

 Using Code to Draw Triangles
 on the Cartesian Plane (cont’d)

**Algebra**

**Unit 3 Line Master 4b**

1. When you run the program by clicking on the **green flag**
 above the stage, you should see a triangle drawn on the stage:

 

Here are the three points used to draw the triangle and where
in the code you can see the instructions to plot them:

|  |  |  |
| --- | --- | --- |
| **Point A (0,0)** | **Point B (50,50)** | **Point C (50,0)** |
|  |  |  |

 Label the points on the image of the triangle above using
 A, B, and C.

 Using Code to Draw Triangles
 on the Cartesian Plane (cont’d)

**Algebra**

**Unit 3 Line Master 4c**

Let’s take a look at the code that draws the triangle.



* First, we set the pen colour to blue.
We also set the **drawer** sprite to invisible,
which is indicated below the stage.
* Then, we move the **drawer**sprite to the starting point,
which is (**AXCoord**, **AYCoord**). We set these two variables
to (0, 0) earlier in the code.
* Next, we put the pen down so that the sprite will leave a mark
as it glides to each point.
* You can see that we glide the sprite to the B and C points
and then back to the starting point, which is A.

 Using Code to Draw Triangles
 on the Cartesian Plane (cont’d)

**Algebra**

**Unit 3 Line Master 4d**

2. Adjust the points as indicated below and execute the program
 to draw each triangle.
 Sketch each triangle on the image of the stage provided.

|  |  |
| --- | --- |
| **Points** | **Triangle** |
| a) A(0, 0) B(50, 100) C(100, 0) | Calendar  Description automatically generated |
| b) A(–100, 100) B(0, 0) C(–100, 0) | Calendar  Description automatically generated |
| c) A(–100, –100) B(–50, –50) C(–100, 0) | Calendar  Description automatically generated |

 Using Code to Draw Triangles
 on the Cartesian Plane (cont’d)

**Algebra**

**Unit 3 Line Master 4e**

3. Adjust the points two more times to make your own triangles.
 Indicate what points you used and sketch the triangles on the
 image of the stage.

|  |  |
| --- | --- |
| **Points** | **Triangle** |
| a)  | Calendar  Description automatically generated |
| b)  | Calendar  Description automatically generated |

 Using Code to Draw Triangles
 on the Cartesian Plane (cont’d)

**Algebra**

**Unit 3 Line Master 4f**

4. Indicate the points that would be needed to make each
 of these triangles.
 You can check your answers by entering the points
 in the application.

|  |  |
| --- | --- |
| **Points** | **Triangle** |
| a)  |  |
| b)  |  |

In Master 5, you will adjust the application so that it contains subprograms.

**Additional Challenge**

Alter the application to draw a rectangle with vertices A(0, 0),
B(100, 0), C(100, 50), and D(0, 50).
Then change the coordinates in your application to draw 2 more different rectangles.