Alex Crimmins

Teacher's Name: Ms. Gasser

Algebra 1, C Band

Algebra 1, Quarter 3 Benchmark: Make Your Own Design!

Introduction: *My project for the most part is a reference or in this case a frame to a shadow art music video known simply as Bad Apple showing the character Sakuya Izayoi from Touhou Project. For the most part I want to show the skills of types of slope, the slope itself, etc.*

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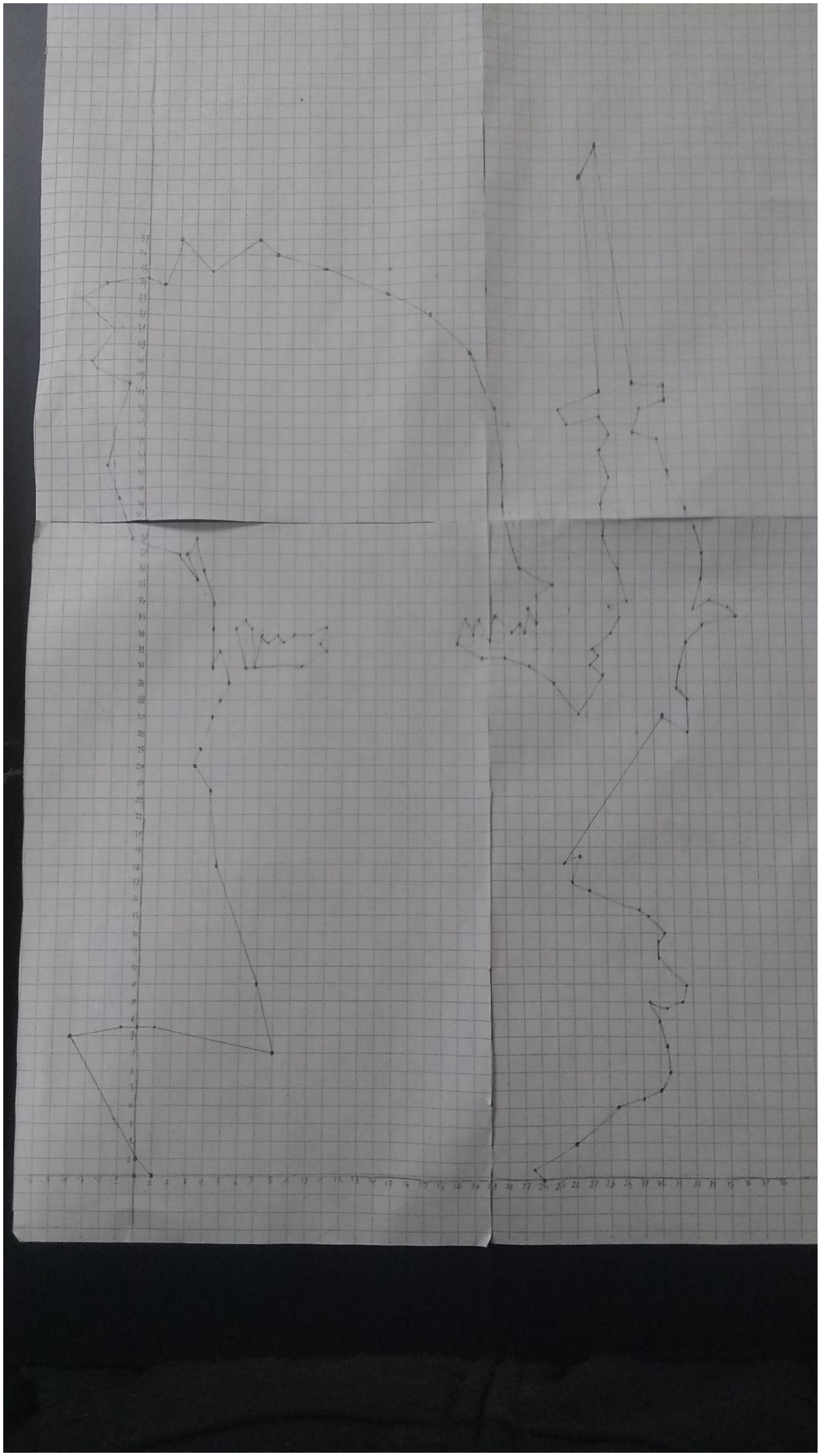

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1. **Slope-intercept form**

   Equation: y = -4x + 39{7<x<8}

   How to find it from a line: You would first find the rise and run of the line, which in this case would be -4/1 and make sure the line continues until it reaches (0,39) on the coordinate plane.

   How to graph it: You would first start at the y intercept at 39, and go down by -4/1 until you reach the y points 11 and 7, you would then use domain and range, the line would begin at 7 and end at 8 on the x coordinate.

2. **Point-slope form**

   You would first find the original slope of the line, and if there isn't a y intercept and only a given point you would rearrange the equation into y = m(x - x1) + y1.

   Graphing it: You would first find the slope of the line, in this case for example -1/3, and find a nearby point on the line, (2,37). Once you have the slope and the point you'd transfer it into point-slope form, getting us y = -1/3(x - 2)+37.

3. **Horizontal lines**

   If the line doesn't have an x-point then the equation would be y = whatever the y-intercept is

   Graphing it: You would first find the horizontal line, in this case y = 30, and then use domain and range on the points 6.5 and 9.5, giving you y = 30{6.5<x<9.5}

4. **Vertical lines**

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If a line is vertical, it won't have a y point or intercept, the equation will be x = the x point.

Graphing it: Start at 30 on the x-coordinate, then you'll plot the points 26 and 28, and using domain and range, you'll have x = 30{26<y<28}.

5. **Parallel lines**

   The slopes will stay the same with each line, but will have different y-intercepts, and being parallel they will never meet or intersect.

6. **Perpendicular lines**

   Perpendicular lines will intersect, but they will meet together to create a 90 degree angle, the lines don't have to be horizontal or vertical either.

Moving on I will explain some of the lines I graphed in my picture.

Considering my graph has over 80 lines, I will only pick a few lines for this task.

- Line 1:
  y = -4x + 39{7<x<8}
  m = -4
  y-intercept/b = 39
  Points = (8,7) (7,11)

- Line 2:
  y = -1/3(x - 2) + 37{-1<x<2}
  m = -1/3
  Point of the slope: (2,37)
  y-intercept/b = 37
  Points = (2,37) (-1,38)

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- Line 3:
  y = 9/6x - 20.3{25.5<x<31.5}
  m = 10/6
  y-intercept: -25.5
  Points = (25.5,18) (31.5,27)

- Line 4:
  y = 30{6.5<x<9.5}
  m = 0
  y-intercept/b:30
  Points = (6.5,30) (9.5,30)

- Line 5:
  x = 33{26<y<28}
  m = undefined
  y-intercept/b = undefined
  Points = (33,26) (33,28)

Despite the fact this picture has over 100 lines, it was pretty much worth it once finishing the Desmos graph.

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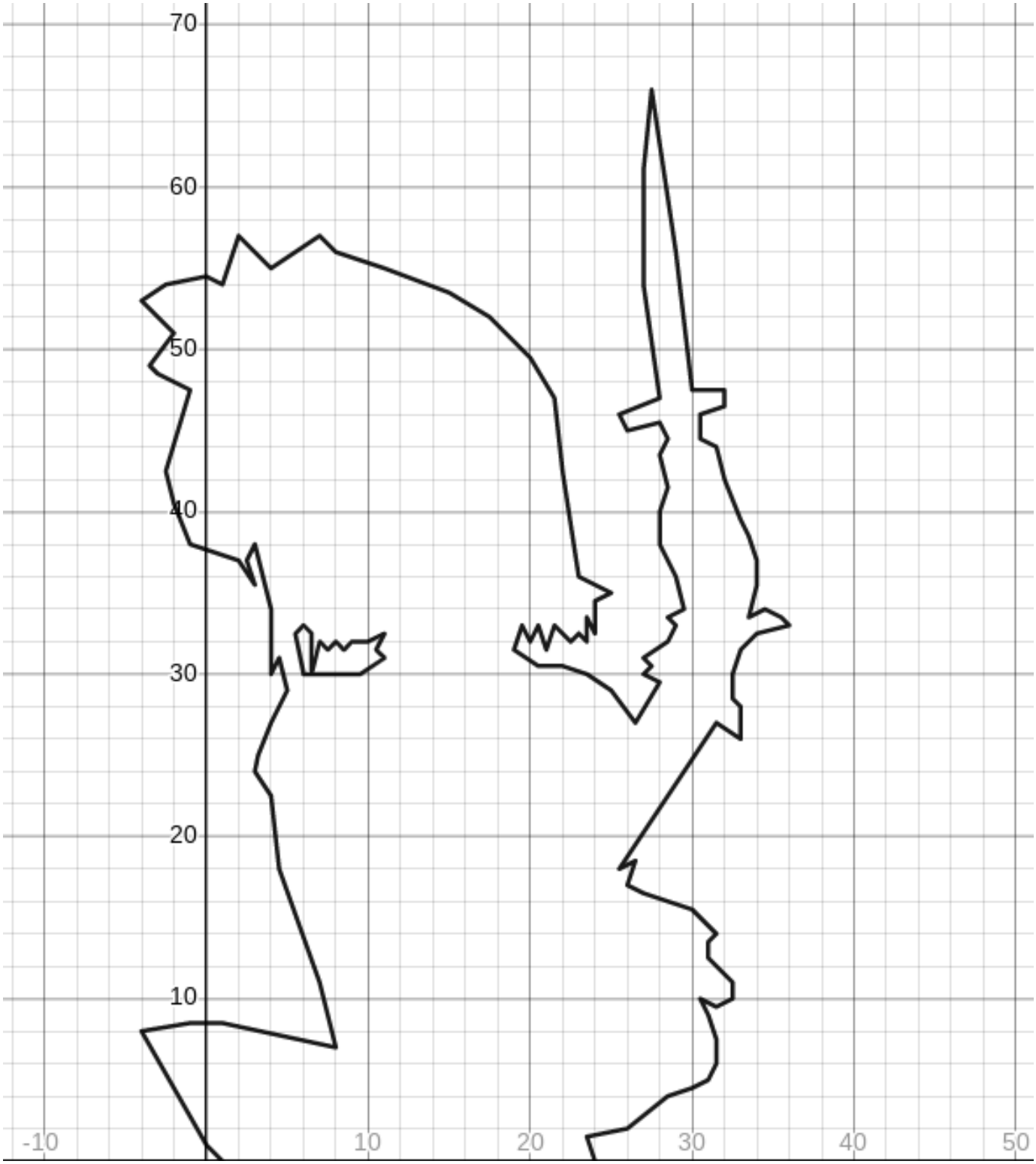

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Reflection

I think I did well with graphing it both on paper and on desmos. For the most part it was mostly hard to pin-point exactly where the points would be but I still managed to plot points, as some are at .5 marks. I think the progress that I've had has stayed the same throughout the previous benchmark experience, but I do believe that I have improved in some small way, I just can't exactly think of what. I obviously learned about domain and range, point-slope form, and a bit about perpendicular and parallel lines when it comes to slope.