Cole, Mcnamee

Teacher's Name: Ms. Gasser
Algebra 1, C Band

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

Introduction: Hi, this is a project that is put together by Lucas and Cole and In this presentation you will learn all about graphing and also how to graph for yourself. The inspiration that sparked this project is the grade that is behind it, also the inspiration behind the shape is squares in squares that make it look like an optical illusion. Skills that are taught in this presentation are, how to graph what slope is what y-intercept is and how this all goes together so you can make and deconstruct problems of your own. The way that the graphing skills are taught is so that it is the fastest and most efficient way.

[**TASK #3**: Insert an image of your artwork on graph paper.]

Tutorial on Finding Equations of Lines (TASK #3)

1. **Slope-intercept form**

   [Explain the process for finding the equation of a line in slope-intercept form when given a line on graph paper]

   You have to find the rise over run and then the y intercept and then you have to put it into

   To find the rise over run you have to look at the 2 points and see how much you have to go up and over

   Y=mx+b

   m= slope

   b= y intercept

   [Explain the process for graphing an equation in slope-intercept form on a coordinate plane]

Cole, Mcnamee

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You start at the y intercept and then use the rise over run which you get by seeing how far you have to go up and how far you have to go to the side it is kinda the same as doing it on a graph

2. **Point-slope form**

[Explain the process for finding the equation of a line in point-slope form when given a line on graph paper] first you have to label the two points with x1 y1 and x2 y2 then you have to put them in to a equation like y2-y1

X2-x1

Then you have to plug the answer into the equation such as $y=\frac{5}{6}(x-4)+7$

To do that you have to use what ever it was labled so you have to put what was labled as x1 and y1

[Explain the process for graphing an equation in point-slope form on a coordinate plane]

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It is the same a on graph paper

3. **Horizontal lines**

[Explain the process for finding the equation of a horizontal line when given a line on graph paper] the line can only be horizontal and go through the y so it could be y=7

[Explain the process for graphing a horizontal line on a coordinate plane]

Cole, Mcnamee

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you find the y intercept and only use that

4. **Vertical lines**

[Explain the process for finding the equation of a vertical line when given a line on graph paper]

[Explain the process for graphing a vertical line on a coordinate plane]

You have to draw a vertical line that only goes through x so it would be something like x=4

5. **Parallel lines**

[Explain the relationship between the slope and y-intercept of parallel lines]

You have to turn it into y=mx+b then you change the y intercept to anything

6. **Perpendicular lines**

[Explain the relationship between the slope and y-intercept of perpendicular lines]

You have to convert it into y=mx+b and then you have to make them the same slope

Furthermore, we will talk about how the design we made was made and all the equations behind it.

Equations for your lines (**TASK #4)**:

Y intercept for the following is the # after the + or - :

Cole, Mcnamee

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Algebra 1, C Band

1. $y = 6$ (slider: -10)
2. $y = -6$ (slider: -10)
3. $x = 6$ (slider: -10)
4. $x = -6$ (slider: -10)
5. $y = -1x + 6 \{0 < x < 6\}$
6. $y = 1x - 6\{0 < x < 6\}$
7. $y = 1x + 6\{-6 < x < 0\}$
8. $y = -1x + -6\{-6 < x < 0\}$
9. $y = -3\{-3 < x < 3\}$
10. $y = 3\{-3 < x < 3\}$
11. $x = 3\{-3 < y < 3\}$
12. $x = -3\{-3 < y < 3\}$
13. $y = -1x + 3$
14. $y = 1x + 3$
15. $y = -1x - 3$
16. $y = 1x - 3$
17. $x = 10$ (slider: -10)
18. $y = 10$ (slider: -10)
19. $x = -10$ (slider: -10)
20. $y = -10$ (slider: -10)

Now that you have seen the equations behind our design we will reveal what it looks like…

[TASK #5: Insert an image of your artwork on DESMOS.]

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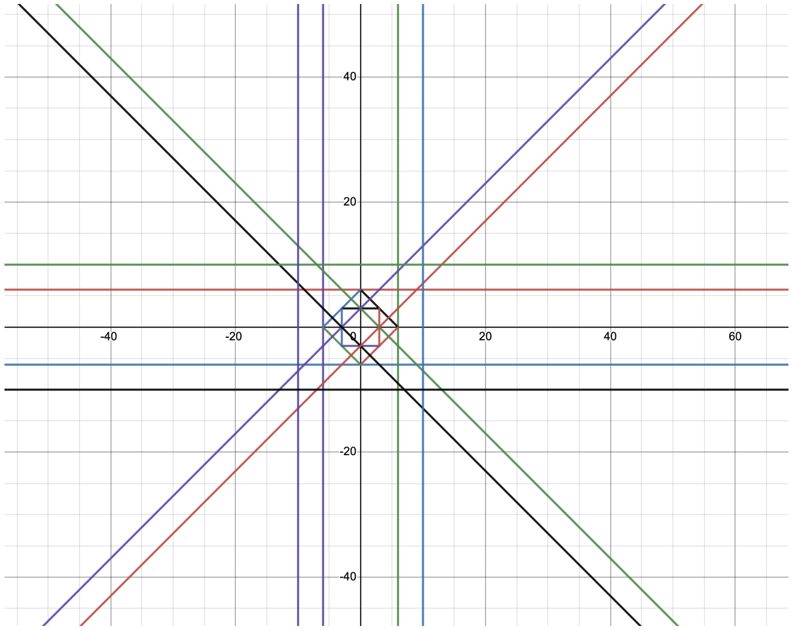

Reflection

[Write a paragraph that answers the following questions:

1. What did you do well throughout the whole process?

   I would say that the best things that we did would be first, the shape and how intricate it is, second how we describe how to graph efficiently and finally the extra paragraph at the bottom that demonstrates breaking down problems.

2. How did you improve from the previous two benchmark project experiences?

   It was in general just a lot different because we were partnered up, but for me (Cole) I will turn it in on-time and would have remembered to include everything mandatory and some extras, which I forgot last time.

3. What did you learn by doing this benchmark?]

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I have learned while doing this project that portioning out work is important while working in a group otherwise the grade for two people is unfair. I also learned that group projects bond people, finally I learned how to describe to someone how to graph and what all the graphing terms mean.

I learned that when working with a partner you should always share the work equally as it is getting assigned so that there is no confusion when the parts of the project are getting shared.

Finally, we will demonstrate how you would use the learned information to solve real problems for further understanding.
Question:
In 2-3 sentences, explain how you would calculate the slope of the following points between the points (1, 10) and (-3, 6). In 2-3 sentences, explain how you would graph the following linear equation: y = -½x + 3 In 2-3 sentences, explain how you would graph a line that goes through the points (0, -2) and (1, 6). In 2-3 sentences, explain how you would convert the following equation to slope-intercept form.
Answer: To calculate points (1, 10) and (-3, 6) you first have to identify x1 y1 and x2 y2. Then you have to subtract y2 from y1 then put a line under it and under the line subtract x2 from x1. Solve, in this case, you would get 6-10= -4 / (-3)-1= -4 so it is -4/-4 or -1 slope then once you have the slope set up the equation, so y=-x then add the y-intercept which is the last number or y2, So the full equation is y=-x+6. To graph, y=-1/2+3 identify the y-intercept, in this case, 3 after this we know the slope is -1/2 so use rise over run and go down one and over 2, keep doing this and plot a point every time, then connect the dots with a line. To graph a line going through (0, -2) and (1, 6) use the method in the first way to find your equation then once you have the equation use the second paragraph to graph it. Another method would be to plot the points and then count the difference once you find the rise/ run, keep plotting the points with that rise/ run then connect the plotted dots with a line. To convert the equation 3x- 5y=15, to y=mx+b form you first have to subtract 3x from the side it is on, then subtract it on the other side to ger -5y= -3x +15 after this divide y by -5 to get y=3/5-3. ...