

Math 9: Graphing and Math Art Project

Purpose: Use the online graphing calculator at www.desmos.com/calculator to create an image consisting of lines and circles/ellipses. For some elaborate examples visit: www.desmos.com/art (we are learning the steps to graphing and your graphs do not need to be as involved).

Requirements:

- Your project must show your understanding of linear relations by incorporating many (at least 10) lines with various slopes and a minimum of two circles/ellipses to form an image or artistic pattern.
- Feel free to use animations but they are not required.
- You can also insert a picture into your grid as a guide. Don't forget to give your art a title.
- A sketch, on paper, will help you visualize your art.
- You may draw and submit your project on paper but you must include all the math equations that comprise your work.

Equations for Lines:

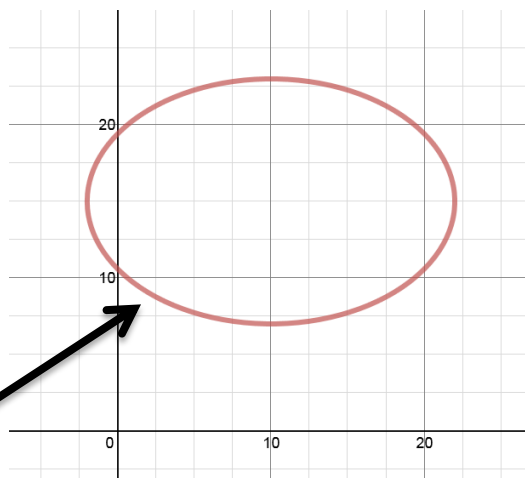
$$y = mx + b; m = \text{slope}, b = \text{y-intercept}$$

Use $\{p \leq x \leq q\}$ to set the length of your lines.

Equations for Circles/Ellipses:

$$\frac{(x-h)^2}{a} + \frac{(x-k)^2}{b} = c;$$

For example, $\frac{(x-10)^2}{4} + \frac{(x-15)^2}{9} = 16$ gives:



(h,k) is the centre; a is the length; b is the height; c is the size of the circle/ellipse. If a & $b = 1$ you will get a circle.

- This project is worth 30 marks with up to 5 bonus marks for going beyond the requirements. Submit your project through a word file or email me a link through the share button. Save often.
- If you want to try to “colour” or shade your art let me know – you replace the “=” with “ \leq ” or “ \geq ”.
- Excellent/quality projects could be submitted for a CUTE Award in March.
- Due Friday, February 28 (CUTE Award submission deadline March 11 – Tuesday after we get back from March break).