Suggested Strategy: I Notice, I Wonder

https://www.nctm.org/Classroom-Resources/
Problems-of-the-Week/I-Notice-I-Wonder/

Possible Qs to Explore

1. What's the story behind this image?
2. Can we predict how many of each of the queer-oglyphs appear on the base? On the other circular platforms?
3. How would we go about constructing the structure on top of the circular platforms?
4. How much paint would we need to paint this structure/space?
5. How tall is the central structure?
6. What types of symmetry are present in the picture?
7. What geometric transformations are present here? Can we find the equations and areas of each circle?
8. How do ratios and proportions show up in this image?
9. How did the artist determine how large (width/height) to draw the queer-oglyphs so there were no two consecutive images on each circular platform?
10. What is the arc length of each section that is partitioned with the dividers? Does this accomplish the artists goals of having spaces for both extroverts and introverts?

Teacher Notes

- Students will likely need some back story about this image (see https://www.dezeen.com/2020/12/20/boudoir-babylon-adam-nathaniel-furman-sibling-architecture-ngv-triennial/). After an initial round of noticing and wondering the teacher should provide them some information about the installation / space and allow students to refine their original Qs and pose additional Qs.
- For some of the exploration Qs, allowing students to view this structure from various vantage points may prove useful (see next 2 pages).
- For Q2, prompt students to look closely at the queer-oglygphs on the base of the structure to notice that the columns of 3 stacked queer-oglyphs between each larger image are not in the same order. This misconception would result in differing answers among students.
- For Q4, Q7, Q9, and Q10, it would be helpful to use a Desmos applet (see p. 5 of this resource), which has the image superimposed onto a coordinate grid. Because the image is 2D, rather than 3D, this task provides an opportunity to explore the relationships between circles and ellipses (e.g., what is the equation of the circle that has the same area as the ellipses we've constructed to represent the base of the structure?).
- In relation to Q6 and Q7, have students consider all 4 types of symmetry (especially rotational symmetry), as well as the relationship between dilations and proportions (also linking to Q8).
- Q10 has been included to allow students an opportunity to create a and debate a mathematical argument about how much space one might want for an introverted vs extroverted space.
- To answer Q5, students might consider the images that have people using the structure. For those who need greater support, prompt them to consider average height and how that would aid them in answering this Q.
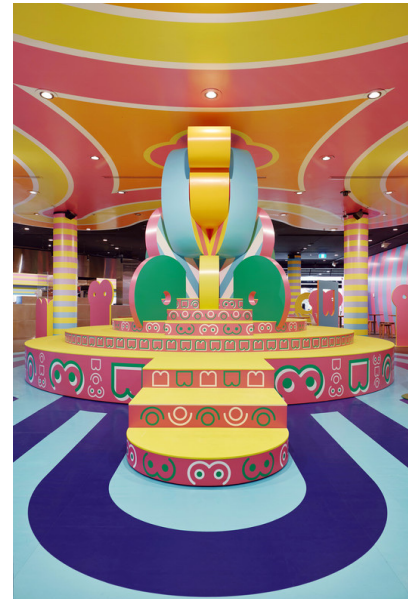
Terminology

Queer (*adj*.): Once a pejorative term, a term reclaimed and used by some within academic circles and the LGBTQ community to describe sexual orientations and gender identities that are not exclusively heterosexual or cisgender.
- My addition: For more information on the word "queer," you can check out my blog post: Why I use queer. https://www.thequeermathematicsteacher.com/queer/why-i-use-queer/
- This definition from Learning for Justice's (2018) *The Acronym and Beyond*. https://www.learningforjustice.org/magazine/publications/best-practices-for-serving-lgbtq-students/lgbtq-terms-definitions-the-acronym-and-beyond

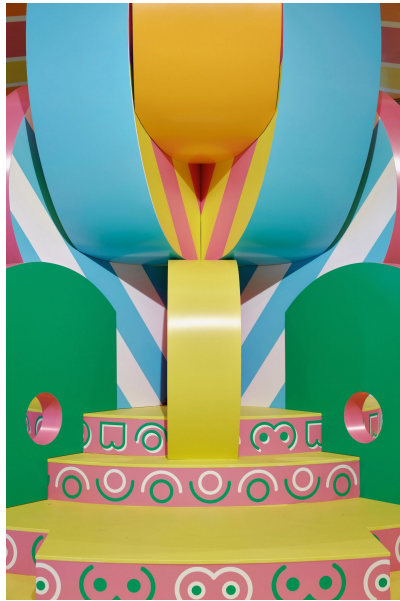**Queer-oglyphs** (*noun*) - symbols (like hieroglyphs) that playfully nod to different body parts and gender markers.
- This definition from this dezeen article: https://www.dezeen.com/2020/12/20/boudoir-babylon-adam-nathaniel-furman-sibling-architecture-ngv-triennial/

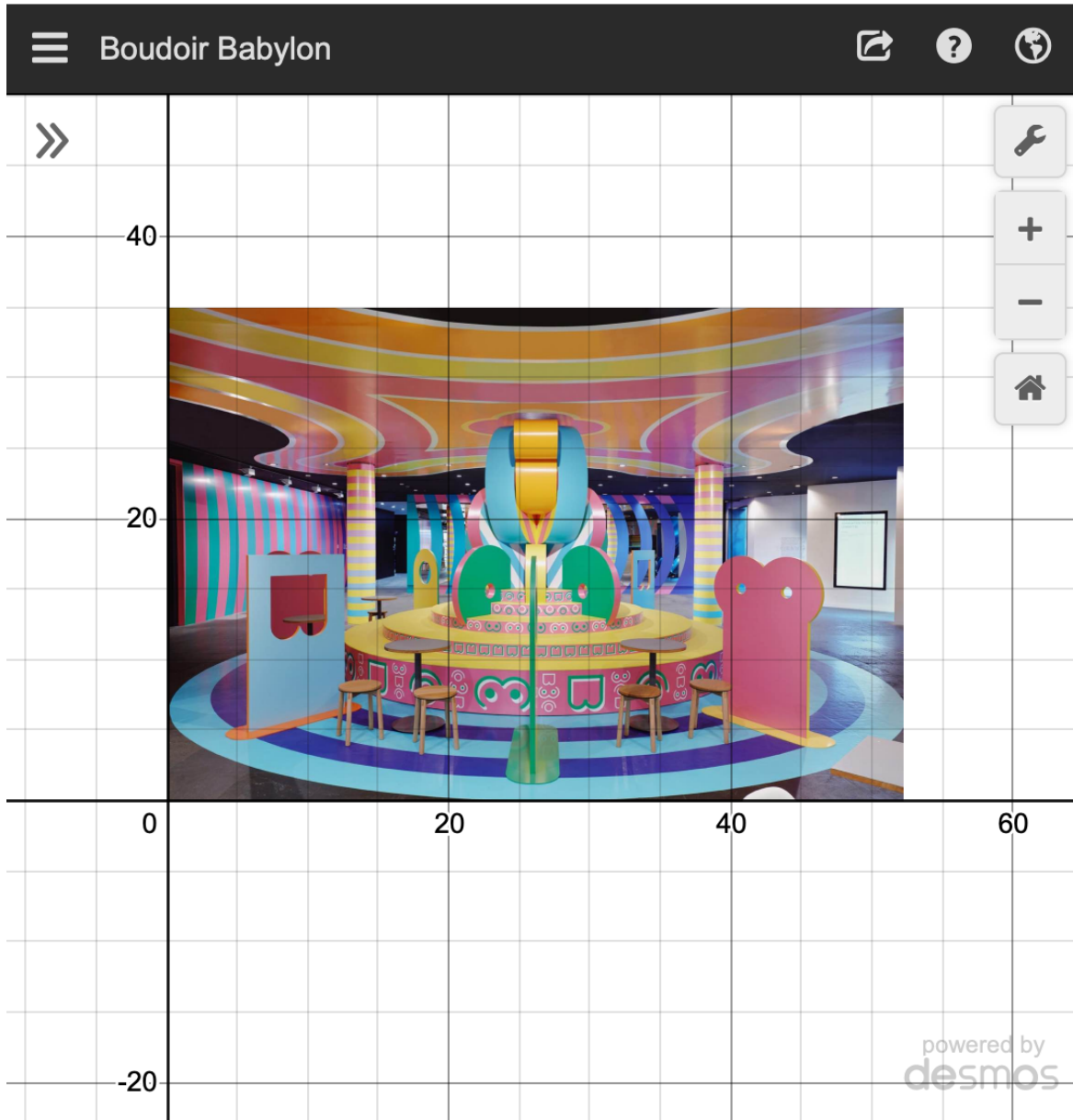Source of images on this page: https://www.dezeen.com/2020/12/20/boudoir-babylon-adam-nathaniel-furman-sibling-architecture-ngv-triennial/

https://www.desmos.com/calculator/ngqknzlr4o