

Geometry Assignment (due Friday)

1. Calculate the reflection of each of these points when inverted in the unit circle $x^2 + y^2 = 1$

a. (3,1)

b. (-2,3)

2. Calculate the reflection of each of these points when inverted in the circle given:

a. (1,2) in the circle $x^2 + y^2 = 9$

b. (1, 2) in the circle $(x - 5)^2 + y^2 = 4$

3. Explain what transformation you get by doing two reflections across parallel reflection lines. If the transformation is a translation, describe how the translation vector is related to the parallel lines. If the transformation is a rotation, describe how the rotation point and angle are related to the reflection lines.

4. Explain what transformation you get by doing two reflections across intersection reflection lines. If the transformation is a translation, describe how the translation vector is related to the parallel lines. If the transformation is a rotation, describe how the rotation point and angle are related to the reflection lines.

5. Describe how we measure angles between intersecting circles (for instance, hyperbolic lines that are half-circle shaped).

6. If you invert/reflect a circle across another circle, what shape(s) is the reflection?

7. Explain how the SAS theorem can be proved using the Application axiom. You can use the in class outline from Oct 11 (Look in Zoom in Canvas). You need to replace the arrows with sentences (because ___ and ___, therefore ___).

8. Explain the ASA theorem can be proved using the Application axiom.