Problem 1.1

0.0/3.0 points (ungraded)
Provide a geometric desctiption of the described sets in the complex plane and derive it geometrically and algebraically.

1) Show that this inequality $2 \leq |z - i| \leq 4$ describes an annulus.
Find its center (a complex number)

Find its area (use pi for π)

2) Show that this equality $|z - 4i| + |z + 4i| = 10$ describes an ellipse.
Find its center (a complex number)

Find its larger semiaxis

3) Show that this equality $\mathrm{Im}\ \frac{1}{z} = 1$ describes a circle.
Find its center (a complex number)

Find its radius

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