Solutions to Homework Assignment 2

MATH 345-01

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1,5,6

1. You can do this!

5. (a) This is a circle of radius 1 centered at $1 - i$.

   (b) This is a closed disk of radius 3 centered at $-i$.

   (c) This is the exterior of a circle of radius 4 centered at $4i$ along with the circle itself.

6. (a) The sum of the distances from an arbitrary point on the graph to $\pm 4i$ is the constant 10. That defines an ellipse with foci at $\pm 4i$.

   (b) The distance from a point on the graph to 1 is the same as the distance to $-i$. Thus, the graph represents the perpendicular bisector of the line segment joining 1 and $-i$. The bisector has slope -1.