1. For the parametric curve \( x = t^2 + 4 \), \( y = 6 - t \) for \( -\infty < t < \infty \),
   a. Eliminate the parameter to obtain an equation in \( x \) and \( y \).
   b. Identify or briefly describe the curve.

2. Find an equation of the line tangent to the cycloid \( x = t - \sin t \), \( y = 1 - \cos t \) at \( t = \pi / 6 \).

3. Find the slope of the line tangent to the polar curve \( y = 4\sin 2\theta \) at the tip of the leaves.

4. Plot the point with polar coordinates \( (2, 5\pi / 6) \), then find the Cartesian coordinates of the points.

5. For the point with Cartesian coordinates \( (\sqrt{3}, -3) \)
   a. Find the polar coordinates \( (r, \theta) \) of the point, where \( r > 0 \) and \( 0 \leq \theta \leq 2\pi \).
   b. Find the polar coordinates \( (r, \theta) \) of the point, where \( r < 0 \) and \( 0 \leq \theta \leq 2\pi \).

6. Replace the Cartesian equation by equivalent polar equations
   a. \( x + y = 4 \)
   b. \( (x - 5)^2 + y^2 = 25 \)

7. Replace the polar equation by the equivalent Cartesian equation. Then describe or identify the graph.
   a. \( r = 4 \csc \theta \)
   b. \( r = 8 \cos \theta - 15 \sin \theta \)

8. Write the equation of the tangent line to the curve \( r = 1 + \sin \theta \) at \( \theta = \frac{3\pi}{4} \).

9. Graph the polar equation
   a. \( r = 4 \sin \theta \)
   b. \( r = 2 + 2 \cos \theta \)
   c. \( r = 5 \cos 3\theta \)

10. Find the area inside \( r = 3 + 2 \sin \theta \) and outside \( r = 2 \).

11. Find the area that lies inside both curves \( r = \sin 2\theta \), \( r = \sin \theta \).

12. Find the area of the region enclosed by the inner loop of \( r = \frac{1}{2} - \cos \theta \). Set up the integral but do not evaluate.
13. Evaluate the expression and write your answer in the from $x + yi$
   a. $\frac{1+4i}{3+2i}$
   b. $|2\sqrt{3} + 2i|$

14. Write $6e^{i\pi/3}$ in the form $x + yi$

15. Find the indicated power of the following using De Moivre’s Theorem. Write your answer in the form $x + yi$
   $(-2 - 2i)^4$

16. Find the fifth roots of 32. Sketch the roots in the complex plane.