

Instructions: Show all work. Use exact answers unless specifically asked to round. Answer all parts of each question.

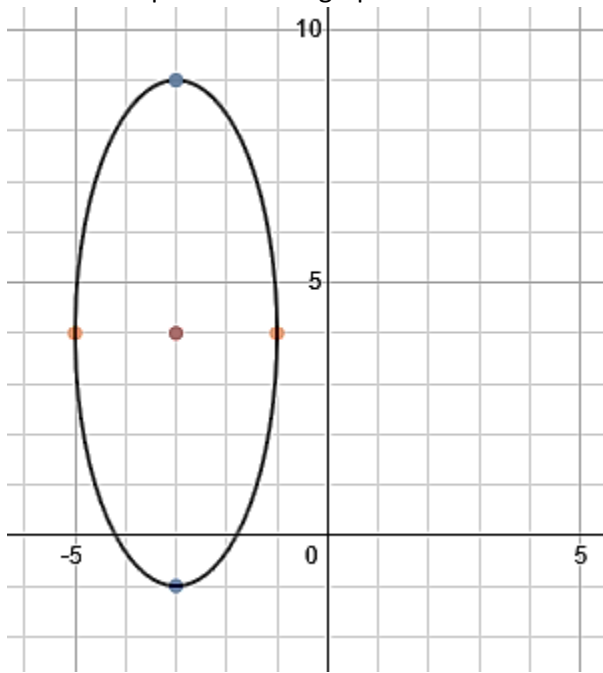
1. Find the product of $z_1 = \cos 70^\circ + i \sin 70^\circ$, $z_2 = \cos 80^\circ + i \sin 80^\circ$

2. Divide $\frac{z_1}{z_2}$ if $z_1 = \cos 70^\circ + i \sin 70^\circ$, $z_2 = \cos 80^\circ + i \sin 80^\circ$.

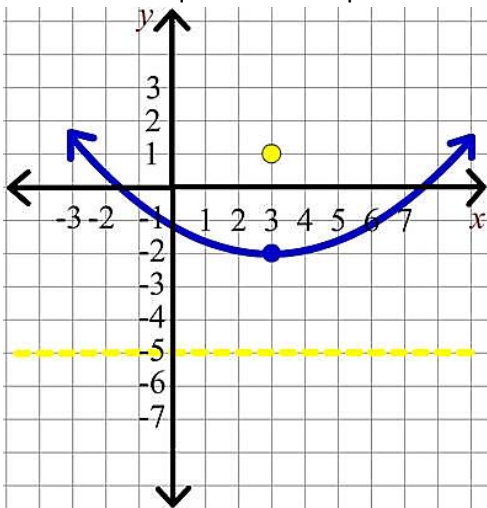
3. Find the complex cube roots of $-1 + i$.

4. Find $(1 - i)^5$ using DeMoivre's Theorem.

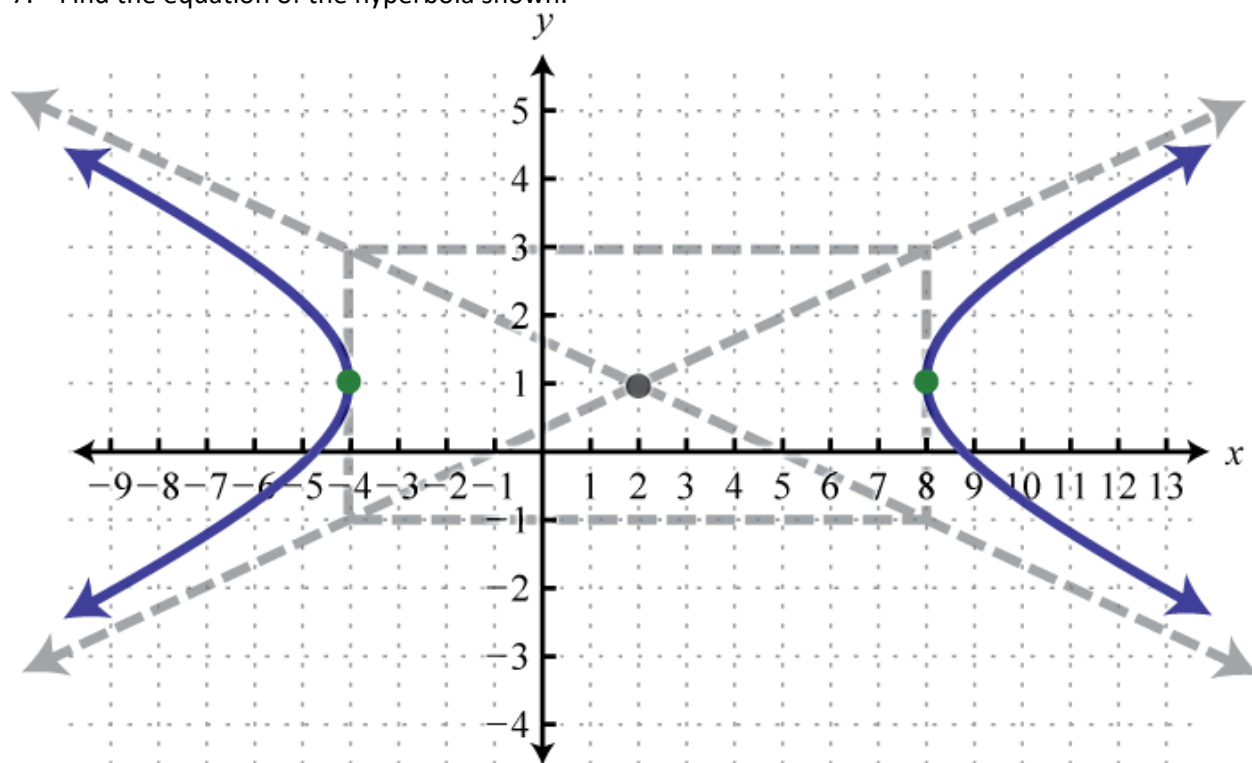
5. Write the equation of the graph shown below.



6. Find the equation of the parabola shown.



7. Find the equation of the hyperbola shown.



8. Graph the equation $r = \frac{2}{3+3\sin\theta}$. Determine the type of conic from the eccentricity.