

Chapter 10 Review & Problems Plus (Section 10.6 Content)

Chapter 10 Review

True-False Quiz

10. **Exercise 10:** The polar equation $r = \frac{ed}{1-e\cos\theta}$ represents an ellipse if $e < 1$.

Exercises

35. **Exercise 35:** Identify the conic given by the polar equation $r = \frac{4}{1+3\cos\theta}$. Find the eccentricity and the equation of the directrix. Sketch the conic.
36. **Exercise 36:** Identify the conic given by the polar equation $r = \frac{2}{3-3\sin\theta}$. Find the eccentricity and the equation of the directrix. Sketch the conic.
37. **Exercise 37:** Identify the conic given by the polar equation $r = \frac{4}{2-\cos\theta}$. Find the eccentricity and the equation of the directrix. Sketch the conic.
38. **Exercise 38:** Identify the conic given by the polar equation $r = \frac{8}{3+5\sin\theta}$. Find the eccentricity and the equation of the directrix. Sketch the conic.
39. **Exercise 39:** Find a polar equation for the parabola with focus at the origin and vertex at $(2, \pi)$.
40. **Exercise 40:** Find a polar equation for the ellipse with focus at the origin, eccentricity $\frac{1}{2}$, and directrix $x = 3$.
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Chapter 10 Problems Plus

1. **Problem 3:** A satellite is in an elliptical orbit around the earth with the center of the earth at one focus. The height of the satellite above the earth varies between 140 km and 440 km. The radius of the earth is 6380 km. Find a polar equation for the orbit. (Place the focus at the origin.)

2. **Problem 5:** A comet moves in a parabolic orbit with the sun at the focus. When the comet is 6×10^7 km from the sun, the line segment from the sun to the comet makes an angle of $\pi/3$ with the axis of the orbit. Find a polar equation for the orbit.