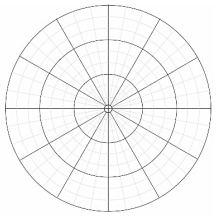
Pre Calculus
Chapter 9 Study Guide

1. Graph each point on the polar grid to the right.

(a) $D\left(-2, \frac{5\pi}{4}\right)$
(b) $M\left(3, -\frac{13\pi}{4}\right)$
(c) $H(2.5, 240°)$



2. Sketch the polar equations.
(a) $r = 5.5$
(b) $\theta = -\frac{11\pi}{3}$

3. Find the distance between $P_1(1, 30^0)$ and $P_2\ (3, -\frac{\pi}{4})$.

4. Identify the type of curve it represents.

$$r^2 = 9\cos 2\theta$$

5. Find the polar coordinates. Use $0 \leq \theta < 2\pi$ and $r \geq 0$.
(a) $(2, 2)$
(b) $(-2, -3)$

6. Find the rectangular coordinates of $\left(3, -\frac{5\pi}{3}\right)$.

7. Write $x^2 + y^2 = 3x$ in polar form.

8. Write $r = \cos\theta$ in rectangular form.

9. Simplify the following.
(a) i^{93}
(b) $(-3 + 7i) + (-4 - 3i)$
(c) $(1 + \sqrt{7}i)(-2 - \sqrt{5}i)$
(d) $\frac{(2+6i)}{(3-4i)}$

10. Graph each number in the complex plane and find its absolute value.
(a) $2 - 3i$
(b) $3i$

11. Express each $-4 + 4i$ in polar form.

12. Graph $4\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)$. Then express it in rectangular form.

13) Solve the system using algebra and trigonometry. Assume $0 \leq x < 2\pi$.

$$r = sin\ x$$
$$r = \sqrt{3}\ -\ sin\ x$$