Do Not Write on this Worksheet

Chapter 6 – Review Worksheet

1) Plot the following points on a polar graph. Label the points A, B, and C.

A) $(r, \theta) = (7, 150^\circ)$ B) $(r, \theta) = (5, -135^\circ)$ C) $(r, \theta) = (-3, 210^\circ)$

Determine two other pairs of polar coordinates for each point, one with r positive and one with r negative.

2) $(r, \theta) = (-9, 166^\circ)$ 3) $(r, \theta) = (12, 287^\circ)$

Using a table, graph each equation on a polar graph.

4) $r = \sin\theta$ 5) $r = 5 + 2\cos\theta$ 6) $r = 2 - 4\sin\theta$

Transform the given equation to Cartesian coordinates and simplify. Determine which conic section the equation represents.

7) $r = 12\sin\theta$ 8) $r = \dfrac{4}{1 - 4\cos\theta}$ 9) $r = 4$

Transform the given equation to polar coordinates. If possible, solve for r in terms of θ.

10) $x^2 + y^2 - 64x = 0$ 11) $8x^2 + 9y^2 - 8x - 16 = 0$ 12) $x^2 - y^2 = 9$ 13) $x = 1$

Simplify.

14) $\sqrt{-400}$ 15) $\sqrt{-48}$ 16) $\sqrt{-23}$ 17) i^{40}

18) i^{543} 19) i^{-17} 20) $|3 - 4i|$ 21) $|-7 + 4i|$

Plot the following points on a complex plane.

22) $5 + 3i$ 23) $-3 + 4i$ 24) $3(\cos 60^\circ + i\sin 60^\circ)$

Let $z_1 = 6 + 2i$ **and** $z_2 = -4 + i$, **find:**

25) $z_1 + z_2$ 26) $z_1 - z_2$ 27) $z_1\, z_2$ 28) $\dfrac{z_1}{z_2}$

Let $z_1 = 81(\cos 120^\circ + i\sin 120^\circ)$ **and** $z_2 = 9(\cos 30^\circ + i\sin 30^\circ)$. **Find:**

29) $z_1\, z_2$ 30) $\dfrac{z_1}{z_2}$ 31) The fourth roots of z_1 32) $(z_2)^3$

33) Find the complex fourth roots of $-16i$.

34) Find the complex fifth roots of i.

35) Determine the value of $\left(\sqrt{3} - i\right)^6$.