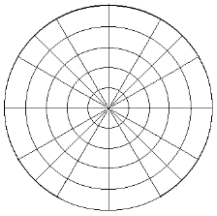
7.12b: Test Review WS #2 ***No calculator***

First plot each point, given as polar coordinates. Then, determine 3 other coordinates for the same point. Use $-360° \leq \theta \leq 360°$ if in degrees, or use $-2\pi \leq \theta \leq 2\pi$ if in radians.

1. A = $(-3, \frac{7\pi}{6})$



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Convert the given rectangular coordinates into polar coordinates, where $0 \leq \theta \leq 2\pi$.

2. $(-2, 2\sqrt{3})$

Convert the given polar coordinates into rectangular coordinates.

3. $\left(2\sqrt{3}, \frac{11\pi}{6}\right)$

Find the distance between the complex numbers. ***No calculator***

4. $(-4 + 6i)$ and $(1 + 7i)$

Find the midpoint between the complex numbers. ***No calculator***

5. $(14 - 3i)$ and $(3 - 5i)$

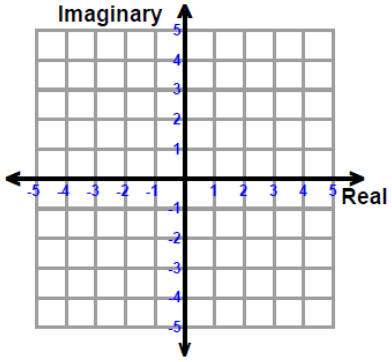
Graph each complex number, find its modulus (absolute value) and argument (direction), and then write in polar form, where $0 \leq \theta \leq 2\pi$. ***No calculator***

6. $z = -\sqrt{2} - \sqrt{2}i$

Modulus:

Argument:

Polar:



7. Convert $z = -2 + 2\sqrt{3}i$ to polar form, where $0 \le \theta \le 2\pi$.

8. Convert $z = 4\sqrt{3}(\cos 240° + i \sin 240°)$ to rectangular form. ***No calculator**

Simplify each expression using polar methods. Answer in polar form, where $0 \le \theta \le 2\pi$.
***No calculator**

Given: $z_1 = 2\left(\cos\frac{5\pi}{3} + i\sin\frac{5\pi}{3}\right)$, $z_2 = 3\left(\cos\frac{7\pi}{6} + i\sin\frac{7\pi}{6}\right)$, $z_3 = 2\left(\cos\frac{\pi}{4} + i\sin\frac{\pi}{4}\right)$

9. $z_1 \cdot z_2$

10. $\frac{z_1}{z_3}$

11. $(z_3)^3$

12. Find the cube roots of $\sqrt{3} - i$.

13. Find the fourth roots of z_3