

Pre-Calculus Homework #19

- 1) Graph, find the absolute value, and convert $\frac{-7}{2} + \frac{7\sqrt{3}}{2}i$ into polar form.
- 2) Convert to polar form and then simplify $\frac{-6 - 6\sqrt{3}i}{4\sqrt{3} + 4i}$
- 3) Simplify $(\frac{-\sqrt{2}}{2} + \frac{\sqrt{2}}{2}i)^{13}$ and write your answer in rectangular form.
- 4) Find (in polar form), and graph, the fifth roots of 32.
- 5) Solve $x^6 - 729 = 0$ and put your answers in rectangular form.
- 6) Graph the following points on a polar graph:
A) $(-3, \frac{5\pi}{6})$ B) $(0, 210^\circ)$ C) $(4, \frac{-17\pi}{12})$ D) $(2, 40^\circ)$ E) $(-5, \frac{\pi}{4})$
- 7) Find the polar coordinates of the point $(\frac{3\sqrt{2}}{2}, \frac{-3\sqrt{2}}{2})$ twice, first in degrees and then again in radians, using the smallest possible positive angle.
- 8) Find the rectangular coordinates of the point $(-3, \frac{-4\pi}{3})$.
- 9) Find the polar coordinates of the point $(\frac{-5}{2}, \frac{-5\sqrt{3}}{2})$ twice, first in degrees and then again in radians, using the smallest possible positive angle.
- 10) Find the rectangular coordinates of the point $(4, 1995^\circ)$.
- 11) Convert $x^2 - 4y^2 = 4$ to a polar equation.
- 12) Convert $r = 7$ to a rectangular equation.
- 13) Convert $x^2 + y^2 = 8y$ to a polar equation.

- 14) Convert $r = -3\cos\theta$ to a rectangular equation.
- 15) Convert $-2x^2y = 16$ to a polar equation.
- 16) Convert $r = \cos\theta - \sin\theta$ to a rectangular equation.
- 17) Graph the equation $r = 1 + 4\cos 2\theta$ for $0 \leq \theta \leq 2\pi$
- 18) Graph the equation $r = 4 - 4\sin\theta$ for $0 \leq \theta \leq 2\pi$
- 19) Graph the equation $r = \frac{\theta}{2}$ for $0 \leq \theta \leq 6\pi$
- 20) Graph the equation $r = 6 - 5\cos 5\theta$ for $0 \leq \theta \leq 2\pi$