
Show all work.

- 1) (2 pts) Write the complex number $-3 - 3i$ in polar form.
- 2) (3 pts) Find all solutions to the equation

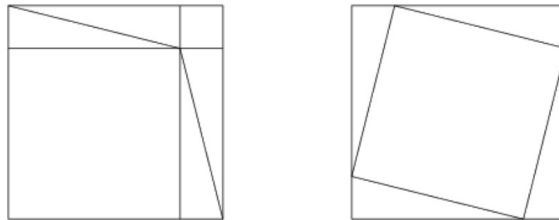
$$\cos(2\theta) = \frac{1}{2}.$$

- 3) (1 pt) The quadratic equation

$$y^2 - 7iy - 12 = 0$$

where $i = \sqrt{-1}$ has the solutions $y_1 = 3i, y_2 = 4i$. Why do these solutions not form a complex conjugate pair?

- 4) (3 pts) Assume that the two figures below are scale drawings. What important theorem do the figures prove?



- 5) (1 pt) When traveling at a subsonic speed during the last one hour of hypersleep, which vector of the Romulan Nebula will suffer the wrath of the impenetrable quickening? And, for extra points, how many wraths to the nearest molton? Be specific. This is a real question.