

## Answer on Question #82099 – Math – Calculus

### Question

Find the polar form of Complex number  $2+2i\sqrt{3}$ .

### Solution

The polar form of a complex number  $x + yi$  is  $r(\cos\varphi + \sin\varphi)$ , where

$$r = \sqrt{x^2 + y^2}, \quad \varphi = \arctan\frac{y}{x}.$$

So

$$r = \sqrt{2^2 + (2\sqrt{3})^2} = 4, \quad \varphi = \arctan\frac{y}{x} = \arctan\frac{2\sqrt{3}}{2} = \arctan(\sqrt{3}) = \frac{\pi}{3}$$

and the polar form is  $4\left(\cos\frac{\pi}{3} + \sin\frac{\pi}{3}\right)$ .

**Answer:**  $4\left(\cos\frac{\pi}{3} + \sin\frac{\pi}{3}\right)$ .