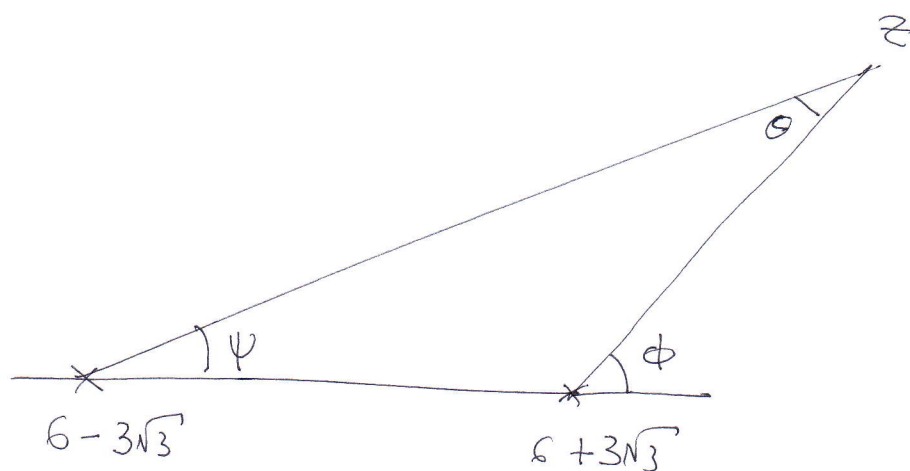




firstly $\theta = \phi - \psi$

$$\arg(z - (6 + 3\sqrt{3})) = \phi$$

$$\arg(z - (6 - 3\sqrt{3})) = \psi$$

$$\therefore \theta = \arg(z - 6 + 3\sqrt{3})$$

$$\psi = \arg(z - 6 + 3\sqrt{3})$$

$$\therefore \boxed{\arg(z - 6 - 3\sqrt{3}) - \arg(z - 6 + 3\sqrt{3}) = \theta}$$

Let also given $z = 6 + 3i$ satisfies this $\nearrow$

$$\arg(6 + 3i - 6 - 3\sqrt{3}) - \arg(6 + 3i - 6 + 3\sqrt{3}) = \theta$$

$$\arg(-3\sqrt{3} + 3i) - \arg(3\sqrt{3} + 3i) = \theta$$

$$\left[\arctan\left(\frac{3}{-3\sqrt{3}}\right) + \pi \right] - \left[\arctan\left(\frac{3}{3\sqrt{3}}\right) \right] = \theta$$

$$+ \frac{5\pi}{6} - \frac{\pi}{6} = \frac{2\pi}{3}$$