

Quiz 12

Jon Beardsley

December 3, 2014

Question 1 *What is the absolute value of the complex number $1 + i$?*

- A $\sqrt{2}$.
- B 0.
- C $1 + i$.
- D 1.

Question 2 *Write the complex number $4(\cos(\frac{7\pi}{6}) + i \sin(\frac{7\pi}{6}))$ in standard form.*

- A $-2\sqrt{2} - 2i$.
- B $4\left(2 - i\frac{\sqrt{3}}{2}\right)$.
- C $\frac{\cos(\frac{7\pi}{6}) - i \sin(\frac{7\pi}{6})}{2}$.
- D $-\frac{\sqrt{3}}{2} - i\frac{1}{2}$.

Question 3 *Which of the following best describes the relationship between the vectors $\langle \frac{1}{2}, \frac{\sqrt{3}}{2} \rangle$ and $\langle -\frac{\sqrt{3}}{2}, \frac{1}{2} \rangle$?*

- A *Perpendicular.*
- B *Parallel.*
- C *Neither perpendicular nor parallel.*
- D *They're just friends.*

Question 4 Calculate the product $z_1 z_2$ if $z_1 = 11 \left(\cos \left(\frac{\pi}{4} \right) + i \sin \left(\frac{\pi}{4} \right) \right)$ and $z_2 = 2 \left(\cos \left(\frac{\pi}{2} \right) + i \sin \left(\frac{\pi}{2} \right) \right)$?

A $11\sqrt{2}(i - 1)$.

B $-\frac{\sqrt{2}}{2} + i\frac{\sqrt{2}}{2}$.

C $\left\langle \frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2} \right\rangle$.

D 22.