

MAT 320**Quiz 0****Fall 2023**

1. Simplify: i^5

- a) 2 b) 1 c) $-i$ d) i e) $5i$

Correct Answer: i

2. Find the sum of complex numbers: $(2 - i) + (-1 + i)$

- a) 2 b) i c) $1 + i$ d) 1 e) $2i$

Correct Answer: 1

3. Find the product of complex numbers: $(1 + i)(2 - i)$

- a) $3 + i$ b) $2 + 2i$ c) $1 + 2i$ d) $2 + 3i$ e) $3 + 2i$

Correct Answer: $3 + i$

4. Find the sum of complex numbers: $(\frac{1}{2} + \frac{\sqrt{3}}{2}i) + (\frac{1}{2} - \frac{\sqrt{3}}{2}i)$

- a) 2 b) i c) $1 + i$ d) 1 e) $2i$

Correct Answer: 1

5. Find the product of complex numbers: $(\frac{1}{2} + \frac{\sqrt{3}}{2}i)(\frac{1}{2} - \frac{\sqrt{3}}{2}i)$

- a) 2 b) i c) $1 + i$ d) 1 e) $2i$

Correct Answer: 1

6. Multiply and convert to Cartesian form: $e^{i\frac{\pi}{4}} \cdot e^{i\frac{\pi}{4}}$

- a) -1 b) $-i$ c) 1 d) i e) 0

Correct Answer: i

7. Find the length (or distance from the origin in the complex plane) of the complex number:
 $\frac{1}{2} + \frac{\sqrt{3}}{2}i$

- a) 1 b) 2 c) $\frac{\sqrt{3}}{2}$ d) $2\sqrt{2}$ e) $\sqrt{2}$

Correct Answer: 1

8. Simplify and find the length of the complex number: $(1 + i)^2$

- a) 1 b) 2 c) $\frac{\sqrt{3}}{2}$ d) $2\sqrt{2}$ e) $\sqrt{2}$

Correct Answer: 2