Instructions Please write your name in the upper right-hand corner of the page. Circle the correct answer. No explanation is required.

1. The set of complex numbers $z$ such that $|z - i|^2 = 4$ represents a circle in the plane.  
   True  False

2. The inequality $|z| + |w| \leq |z + w|$ holds for all complex numbers $z$ and $w$.  
   True  False

3. There are exactly five complex numbers $z$ such that $z^5 = 7 - 2i$.  
   True  False

4. The set of complex numbers $z$ such that $\text{Re}(z^2) = 0$ represents a vertical line in the plane.  
   True  False

5. An open disc in the plane is a connected set.  
   True  False

6. The set of complex numbers $z$ such that $\text{Re}(z) \geq 0$ is a closed set.  
   True  False

7. The function $f(z) = \overline{z}$ is a continuous function.  
   True  False

8. $\lim_{n \to \infty} \frac{1}{(1 + i)^n} = 0$.  
   True  False

9. There is no complex number $z$ for which $e^z = 0$.  
   True  False

10. The inequality $|\sin(z)| \leq 1$ holds for every complex number $z$.  
    True  False