Recap – Complex numbers

Multiple-choice Questions

1. **What is the value of i?**

   a. $\sqrt{1}$ c. $\sqrt{-1}$

   b. 1 d. -1

2. **What is the simplified value of i^{10}?**

   a. 1 c. -1

   b. i d. $-i$

3. **Which of the following expression is written as a complex number?**

   a. $-1 + i$ c. $x + y$

   b. -3 d. $A - 5$

4. **How do we find the complex conjugate of a complex number $a + bi$?**

   a. **We change the sign of bi.**

   b. **We change ethe sign of a.**

   c. **We change the sign of the second term of the complex numbers**

d. We change the signs of both a and bi.

5. Which of the following statements is NOT true?

   a. The real part of a complex number, $a + bi$ is a

   b. The imaginary part of a complex number, $a + bi$ is bi.

   c. $(a + bi)(a - bi) = a^2 + b^2$

   d. When we multiply a complex number with its conjugate, we get a number that is purely imaginary.

6. In an Argand diagram, the complex number $Z = 3 - 0i$ will be a point,

   a. 3 units along the positive imaginary axis

   b. 3 units along the negative imaginary axis

   c. 3 units along the positive real axis

   d. 3 units along the negative real axis

7. What is the value of $(2 - 3i)(4 + i)$?

   a. $10 + i$

   c. $11 - 10i$

   b. $110i$

   d. $10 - 11i$

8. Which expression is in the simplified form?

   a. $\frac{11-6i}{8}$

   b. $\frac{8}{11-6i}$

c. $\frac{11-6i}{8+3i}$

d. $\frac{11-6i}{8i}$

9. **Which of the following is NOT true?**

   a. **The additive inverse of $a + bi$ is $-a - bi$.**

   b. **The conjugate of $2 - 3i$ is $3i - 2$.**

   c. **The multiplicative inverse of $4 + 5i$ is $\frac{1}{4+5i}$.**

   d. $\overline{(z_1 \pm z_2)} = \overline{z_1} \pm \overline{z_2}$

10. **When $3a + 4i = 9 - bi$, the values of a and b are:**

   a. $a = 3, b = -4$

   b. $a = -3, b = -4$

   c. $a = -3, b = 4$

   d. $a = 3, b = 4$