

## 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 the 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.  $10 + i$
  - b.  $110i$
  - c.  $11 - 10i$
  - 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.  $a = 3, b = -4$

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

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

d.  $a = 3, b = 4$