AQA Further Pure 1

Complex Numbers

Section 1: Introduction to Complex Numbers

Multiple Choice Test

1) $(3 + 4i) – (2 – i) =$

(a) $1 + 5i$
(b) $5 + 5i$
(c) $5 + 3i$
(d) $1 + 3i$
(e) I don't know

2) $(5 – 2i) + (-3 + i) =$

(a) $2 + i$
(b) $8 – i$
(c) $2 – i$
(d) $8 + i$
(e) I don't know

3) $(2 + i)(3 – 2i) =$

(a) $8 + 5i$
(b) $8 – i$
(c) $4 – i$
(d) $4 + 5i$
(e) I don't know

4) $[(1 – 2i) + (1 + i)](-3 + i) =$

(a) $-7 + 5i$
(b) $-7 – i$
(c) $-5 + 5i$
(d) $5 – 5i$
(e) I don't know

5) The roots of the equation

$$z^2 + 6z + 10 = 0$$

are

(a) $3 + i, 3 – i$
(b) $3 + 2i, 3 – 2i$
(c) $-3 + 2i, -3 – 2i$
(d) $-3 + i, -3 – i$
(e) I don't know

6) The quadratic equation with roots 1 – 2i and 1 + 2i is

(a) $x^2 + 2x + 5 = 0$
(b) $x^2 – 2x + 5 = 0$
(c) $x^2 – 2x – 3 = 0$
(d) $x^2 + 2x – 3 = 0$
(e) I don't know

7) The solution of the equation

$$(3 – i)(z + 4 – 2i) = 10 + 20i$$

is

(a) $z = 1 – 3i$
(b) $z = -3 + 9i$
(c) $z = 46 – 52i$
(d) $z = 5 + 5i$
(e) I don't know

8) Which of the following is NOT true?

(a) $\frac{1}{i} + i^3 = 0$
(b) $\frac{1}{i^3} – i = 0$
(c) $i^4 = 1$
(d) $\frac{1}{i^2} = i^2$
(e) I don't know

9) The values of a and b (with $a > 0$) which satisfy

$$(a + bi)^2 = 5 + 12i$$

are

(a) $a = 2, b = -3$
(b) $a = 3, b = -2$
(c) $a = 2, b = 3$
(d) $a = 3, b = 2$
(e) I don't know

10) Which of the following statements is NOT true?

(a) $z + z^*$ is real
(b) $\frac{z}{z^*}$ is real
(c) zz^* is real
(d) $z – z^*$ is pure imaginary
(e) I don't know