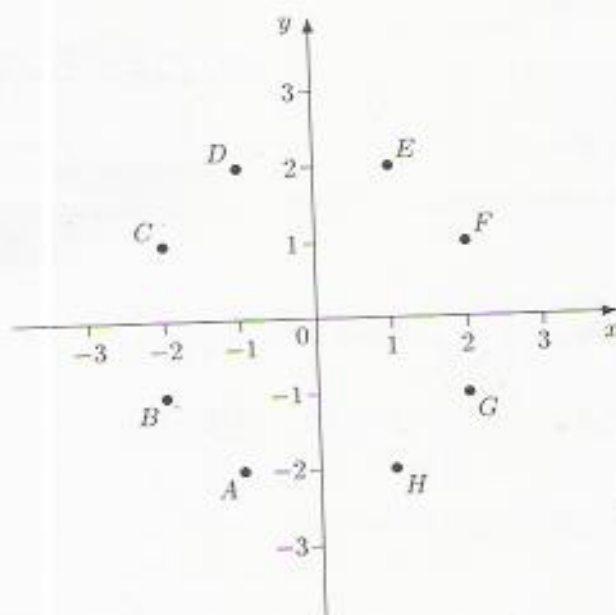


This assignment covers Units 5, 6 and 7.

Unit 5

Questions 1 to 3



The complex number z is defined by

$$z = -2 + i.$$

In each of the following cases, select the point in the Argand diagram above which is closest to representing the given complex number.

- B 1 Select the option which is the point closest to \bar{z} . $-2 - i$ $6 + 3i - 8i = 6 - 5i$
 G 2 Select the option which is the point closest to $(-3 + 4i)/z$. $-3 + 4i \times -2 - i = 10 - 5i$ $10 - 5i - 2 - i = 8 - 6i$
 A 3 Select the option which is the point closest to $z^2 + 2z$. $z^2 + 2z = z(z+2) = (-2+i)(-2+i) = 4 - 4i - 1 = 3 - 4i$ $3 - 4i - 2 - i = 1 - 5i$

Options for Questions 1 to 3

- A Point A B Point B C Point C D Point D
 E Point E F Point F G Point G H Point H

Question 4

Choose the option which gives the complex number with modulus 4 and argument $-\frac{5\pi}{6}$.

Options

- A $2 + 2\sqrt{3}i$ B $2\sqrt{3} + 2i$ C $2 - 2\sqrt{3}i$ D $2\sqrt{3} - 2i$
 E $-2 + 2\sqrt{3}i$ F $-2\sqrt{3} + 2i$ G $-2 - 2\sqrt{3}i$ **H** $-2\sqrt{3} - 2i$

$$4e^{-\frac{5\pi i}{6}} = 4\left(\cos\left(-\frac{5\pi}{6}\right) + i\sin\left(-\frac{5\pi}{6}\right)\right)$$