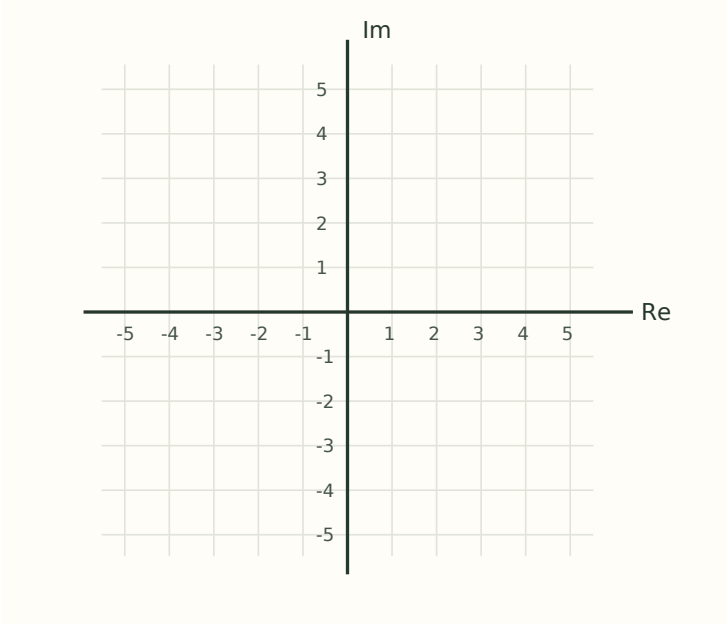
Argand diagrams

6 questions | 17 marks

Equivalent correct methods earn the corresponding marks.

1. On an Argand diagram, plot $2+3i$, $-4+i$ and $-2i$. State their coordinates. [3 marks]



Use the real part for the horizontal coordinate and the imaginary coefficient for the vertical coordinate.

Answer: $(2, 3)$, $(-4, 1)$ and $(0, -2)$.

2. A point is three units left of the origin and four units below it. Write the complex number. [2 marks]

Left is negative real; below is negative imaginary.

Answer: $-3-4i$.

3. For $z=1-4i$, state the coordinates of $\overline{z}$ and $-z$. [3 marks]

Conjugation reverses the imaginary coordinate.

Negation reverses both coordinates.

Answer: $(1,4)$ and $(-1,4)$.

4. Find the distance from $A=-1+i$ to $B=3+4i$. [3 marks]

The horizontal and vertical differences are 4 and 3.

Distance is $\sqrt{4^2+3^2}=5$.

Answer: 5.

5. A rectangle has vertices 0, 4, $4+3i$ and $3i$. Find its perimeter and area. [3 marks]

The side lengths are 4 and 3.

Perimeter $=2(4+3)=14$ and area $=4\times 3=12$.

Answer: Perimeter 14 units; area 12 square units.

6. Describe the transformation that maps every point z to $-\overline{z}$. [3 marks]

If $z=a+bi$, then $-\overline{z}=-a+bi$.

The horizontal coordinate reverses while the vertical coordinate stays fixed.

Answer: Reflection in the imaginary axis.