Real and imaginary parts

6 questions | 15 marks

Equivalent correct methods earn the corresponding marks.

1. State the real and imaginary parts of $-6+9i$. [2 marks]

Compare with $a+bi$.

Answer: Real part -6; imaginary part 9.

2. State the real and imaginary parts of $4-3i+2i$. [2 marks]

$-3i+2i=-i$, so the number is $4-i$.

Answer: Real part 4; imaginary part -1.

3. Classify -8, $6i$ and $2+i$ as real, pure imaginary, or neither. [3 marks]

A real number has coefficient of i equal to zero.

A pure imaginary number has real part zero.

Answer: -8 is real; $6i$ is pure imaginary; $2+i$ is neither.

4. For real x, y, solve $x+(y-2)i=3+5i$. [2 marks]

Real parts give $x=3$.

Imaginary parts give $y-2=5$.

Answer: $x=3$, $y=7$.

5. For real x, y, solve $(4-2i)+(x+yi)=7+3i$. [3 marks]

Real parts: $4+x=7$.

Imaginary parts: $-2+y=3$.

Answer: $x=3$, $y=5$.

6. If $z=3-4i$, find the real and imaginary parts of iz. [3 marks]

$iz=3i-4i^2=4+3i$.

Read the simplified Cartesian form.

Answer: Real part 4; imaginary part 3.