

## Adding and Subtracting Complex Numbers

### Aim

To demonstrate how to add and subtract complex numbers.

### Learning Outcomes

At the end of this section you will be able to:

- Add two complex numbers,
- Subtract two complex numbers.

Complex numbers may be added or subtracted by combining the real parts and the imaginary parts separately.

### Adding Complex Numbers

To add two complex numbers simply add the real parts of both numbers together and then add the imaginary parts of both numbers together.

#### Example 1

$$(3 + 2i) + (1 - 5i) = (3 + 1) + (2 - 5)i = 4 - 3i.$$

In general,  $(a + ib) + (c + id) = (a + c) + (b + d)i$ .

### Subtracting Complex Numbers

To subtract two complex numbers simply subtract the real parts of both numbers and then subtract the imaginary parts of both numbers.

#### Example 2

$$(2 + 4i) - (1 - 2i) = (2 - 1) + (4 - (-2))i = 1 + 6i.$$

In general,  $(a + ib) - (c + id) = (a - c) + (b - d)i$ .

### Related Reading

Morris, O.D., P. Cooke. 1992. *Text & Tests 4*. The Celtic Press.