

Multiplying Complex Numbers

Complex numbers can be multiplied just as if i was a variable like x , with the special property that $i^2 = -1$.

Example:

$$\begin{aligned}(2 + 3i)(1 - i) \\ &= 2 + 3i - 2i - 3i^2 \\ &= 2 + i - 3(-1) \\ &= 5 + i\end{aligned}$$

Complex numbers can **always** be reduced to the form $a + bi$. If there are any terms with higher powers of i , you can factor out i^2 as many times as you need.

Try these complex multiplication questions yourself:

1. $(1 + i)(2 - i) =$
2. $(6 + 3i)(1 + 4i) =$
3. $(1 + i)(4 + 3i) =$
4. $(2i - 1)(3i + 6) =$
5. $(3 + 7i)(9i - 1) =$
6. $(4 + 5i)(2 - 2i) =$

7. $(i + 1)(i + 2)(i + 3) =$

8. $(2 + 3i)(4 - i)(2 + 7i) =$

9. $(3 + i)^3 =$

10. $(2 + 6i)(2 - 6i) =$

<http://math.about.com>