



Operations with Complex Numbers

Today's Standard

HSN.CN.A2 - Use the relation $i^2 = -1$ and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers.

Cues	Notes
What is the relation i^2 ?	$i^2 = -1$ by definition of the imaginary unit.
How to add complex numbers?	To add complex numbers, combine the real parts and the imaginary parts separately.
How to multiply complex numbers?	To multiply complex numbers, use the distributive property and simplify, remembering that $i^2 = -1$.
What are the commutative, associative, and distributive properties?	Commutative property: $a + b = b + a$; Associative property: $(a + b) + c = a + (b + c)$; Distributive property: $a(b + c) = ab + ac$.

Summary

Complex numbers can be added, subtracted, and multiplied using the properties of real numbers and the relation $i^2 = -1$. Understanding these operations is essential for advanced mathematics and various scientific applications.