LESSON MAKER PRO

Complex Number Moves

Add, subtract, multiply, and read complex numbers as points.

HIGH SCHOOL · MA.912.NSO.2.4

MA.912.NSO.2.4 "Solve mathematical and real-world problems involving complex numbers represented algebraically or on the coordinate plane."

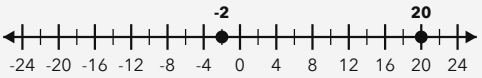
NAME _____ DATE _____

REAL AND IMAGINARY PARTS

A complex number a + bi matches the point (a, b), where a is the real coordinate and b is the imaginary coordinate. Add or subtract matching parts. When multiplying, use $i^2 = -1$.

WORKED EXAMPLE

The number line shows the real-part move for (20 + 21i) + (-22 - 23i). Find the sum.



1. Add real parts: 20 + (-22) = -2.
2. Add imaginary parts: 21i + (-23i) = -2i.
3. Combine the parts: -2 - 2i.

Answer: -2 - 2i

PRACTICE 4 problems

1 Find (4 + 6i) + (-7 - 9i).

ANSWER _____

2 Find (8 - i) - (3 + 5i).

ANSWER _____

3 Find (6 + i)(4 - 3i).

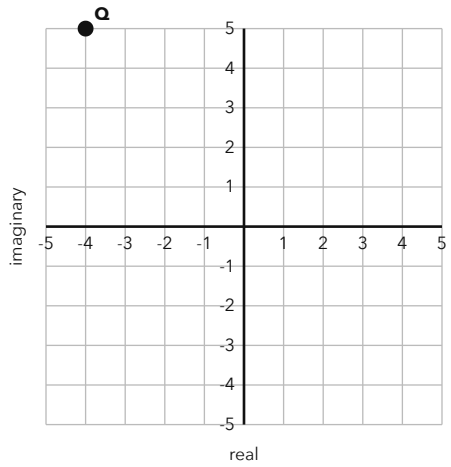
ANSWER _____

4 Solve for z. Then give its coordinate: z + (-6 + 7i) = 9 - 4i.

ANSWER _____

APPLY IT Show your work

1 A music app shows filter setting Q. The app adds 7 - 8i. What is the new setting?



ANSWER _____

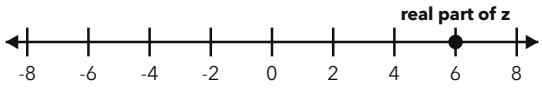
2 A game coder combines two motion signals: (4 + 5i)(3 - i). Find the product.

WORK SPACE

ANSWER _____

CHALLENGE One step up

The number line marks the real coordinate of z = 6 - 4i. Multiplying z by i rotates its point 90 degrees counterclockwise. Find iz and its coordinate.



WORK SPACE AND ANSWER

ANSWER KEY

Complex Number Moves

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Find (4 + 6i) + (-7 - 9i).	**-3 - 3i**
2	Find (8 - i) - (3 + 5i).	**5 - 6i**
3	Find (6 + i)(4 - 3i).	**27 - 14i**
4	Solve for z. Then give its coordinate: z + (-6 + 7i) = 9 - 4i.	**z = 15 - 11i; (15, -11)**

PART 2 · APPLY IT

1. **3 - 3i** Q is -4 + 5i. Add 7 - 8i to get 3 - 3i.
2. **17 + 11i** Distribute, then replace $-5i^2$ with +5. Combine the real and imaginary parts.

CHALLENGE

iz = 4 + 6i; (4, 6)

Accept equivalent forms with terms reordered, such as -14i + 27. Coordinates must list the real coordinate first and the imaginary coordinate second.