Unit 3 Lesson 12: Arithmetic with Complex Numbers

1 Math Talk: Telescoping Sums (Warm up)

Student Task Statement

Find the value of these expressions mentally.

$2 - 2 + 20 - 20 + 200 - 200$

$100 - 50 + 10 - 10 + 50 - 100$

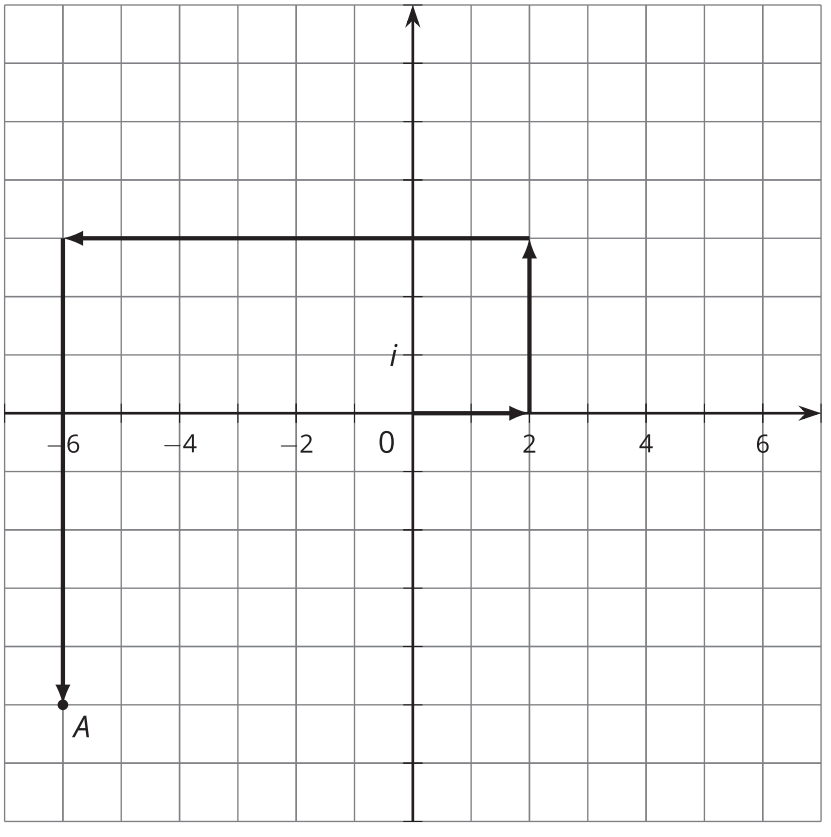
$3 + 2 + 1 + 0 - 1 - 2 - 3$

$1 + 2 + 4 + 8 + 16 + 32 - 16 - 8 - 4 - 2 - 1$

2 Adding Complex Numbers

Student Task Statement

1. This diagram represents $(2 + 3i) + (-8 - 8i)$.



a. How do you see $2 + 3i$ represented?

b. How do you see $-8 - 8i$ represented?

c. What complex number does A represent?

d. Add "like terms" in the expression $(2 + 3i) + (-8 - 8i)$. What do you get?

2. Write these sums and differences in the form $a + bi$, where a and b are real numbers.

a. $(-3 + 2i) + (4 - 5i)$ (Check your work by drawing a diagram.)

b. $(-37 - 45i) + (11 + 81i)$

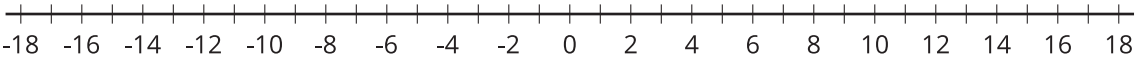
c. $(-3 + 2i) - (4 - 5i)$

d. $(-37 - 45i) - (11 + 81i)$

3 Multiplication on the Complex Plane

Student Task Statement

1. Draw points to represent 2, 2^2, 2^3, and 2^4 on the real number line.



2. a. Write $2i$, $(2i)^2$, $(2i)^3$, and $(2i)^4$ in the form $a + bi$.

b. Plot $2i$, $(2i)^2$, $(2i)^3$, and $(2i)^4$ on the complex plane.