



8-4 Additional Practice

The Complex Plane

Round all answers to the nearest tenth.

1. What point in the complex plane represents $-8 + 5i$?
2. Find the midpoint of the segment that joins the complex numbers $12 - 3i$ and $-16 - 9i$.
3. Find the modulus of the complex number $-5 - 13i$.
4. Find the distance between the complex numbers $r = 3 - 2i$ and $s = 12 + 5i$.
5. Find the distance between the complex numbers $r = -2 + 4i$ and $s = -5 + 2i$.
6. Correct the error of the following student's solution.

Find the midpoint between the complex numbers $r = 6 + 9i$ and $s = 5 - 4i$.

$$\text{Midpoint} = \frac{(6 + 9i) + (5 - 4i)}{2}$$

$$\text{Midpoint} = \frac{(6 + 9) + (5 - 4i)}{2}$$

$$\text{Midpoint} = \frac{20 - 4i}{2}$$

$$\text{Midpoint} = 8i$$

7. The total impedance of an electrical circuit is defined by $Z = \frac{Z_1 Z_2}{Z_1 + Z_2}$, where $Z_1 = 3 - 2i$ and $Z_2 = 3 + 2i$ are the parallel impedances of the circuit. What ordered pair describes the total impedance of the circuit?
8. Two alternate resistors connected to a circuit have voltages of $6.4 + 5i$ and $7 - 4.2i$. What is the total voltage of the circuit?