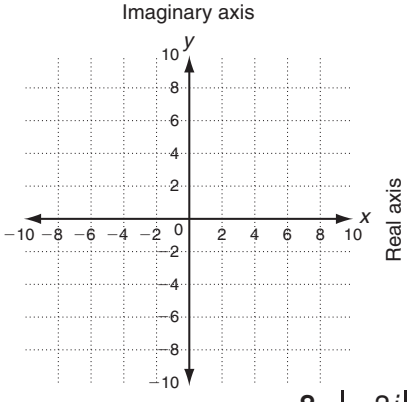
Name _____ Date _____ Class _____

LESSON 5-9

Practice B

Operations with Complex Numbers

Graph each complex number.



1. -6

2. $4i$

3. $6 + 7i$

4. $-8 - 5i$

5. $-3i$

Find each absolute value.

6. $|4 + 2i|$

7. $|5 - i|$

8. $|-3i|$

Add or subtract. Write the result in the form *a* + *bi*.

9. $(-1 + 2i) + (6 - 9i)$

10. $(3 - 3i) - (4 + 7i)$

11. $(-5 + 2i) + (-2 + 8i)$

Multiply. Write the result in the form *a* + *bi*.

12. $3i(2 - 3i)$

13. $(4 + 5i)(2 + i)$

14. $(-1 + 6i)(3 - 2i)$

Simplify.

15. $\frac{2 + 4i}{3i}$

16. $\frac{3 + 2i}{4 + i}$

17. $2i^{11}$

Solve.

18. In electronics, the total resistance to the flow of electricity in a circuit is called the impedance, Z. Impedance is represented by a complex number. The total impedance in a series circuit is the sum of individual impedances. The impedance in one part of a circuit is $Z_1 = 3 + 4i$. In another part of a circuit, the impedance is $Z_1 = 5 - 2i$. What is the total impedance of the circuit?