

LESSON
13-2

Practice C

Operations with Complex Numbers

Find each absolute value.

1. $|-12 + 6i|$

2. $|-7 - 4i|$

3. $\left| \frac{1}{2} + \frac{1}{2}i \right|$

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

4. $(8 - i) - (-5 - 4i)$

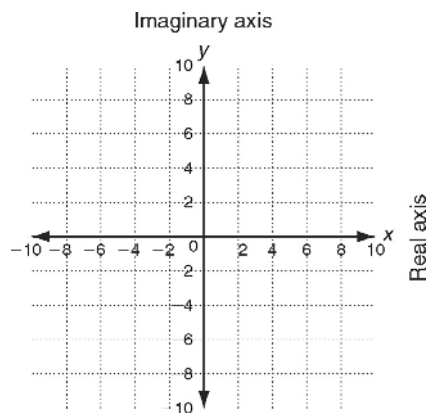
5. $(2 - 11i) - (10 + 6i)$

6. $\left(\frac{1}{2} + \frac{3}{4}i \right) + \left(-\frac{1}{4} - \frac{5}{4}i \right)$

Find each sum by graphing on the complex plane.

7. $(-6 - i) + (1 + 3i)$

8. $(-2 - 2i) + (8 - 6i)$



Multiply or divide. Write the result in the form $a + bi$.

9. $\frac{-3 + 7i}{1 + 8i}$

10. $(-4 - 9i)(8 + 2i)$

11. $\frac{5 + i}{2 - i}$

Simplify.

12. $i^{24} - i^{13} + i^{12}$

13. $-4i^{13}$

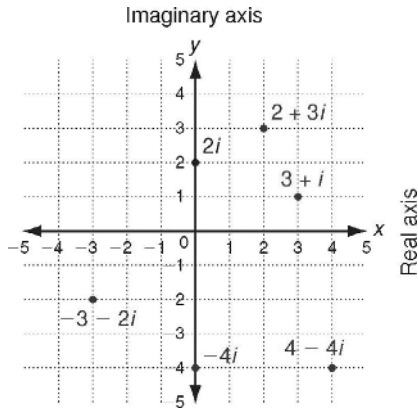
14. $6 - 4i^{18}$

Solve.

15. In a circuit, the voltage, V , is given by the formula $V = IZ$, where I is the current and Z is the impedance. Both the current and impedance are represented by complex numbers. Find the voltage if the current is $3 + 2i$ and the impedance is $4 - i$.

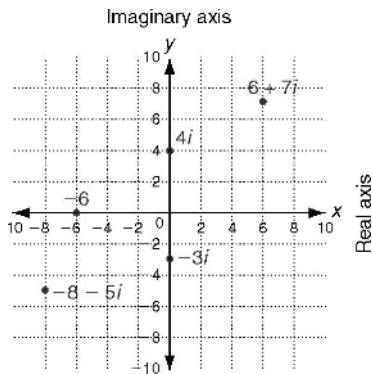
13-2 OPERATIONS WITH COMPLEX NUMBERS

Practice A



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|--------------------------------|---------------------------------|
| 7. $2\sqrt{10}$ | 8. $\sqrt{10}$ |
| 9. 5 | 10. $10i$ |
| 11. $-4i$ | 12. $2+12i$ |
| 13. $4+6i$ | 14. $-3-4i$ |
| 15. $10-5i$ | 16. $6i$ |
| 17. $-20i$ | 18. $12+16i$ |
| 19. $-10+6i$ | 20. $7-11i$ |
| 21. $-8+9i$ | 22. $-i$ |
| 23. $\frac{5}{3}-\frac{2}{3}i$ | 24. $\frac{1}{5}+\frac{13}{5}i$ |

Practice B

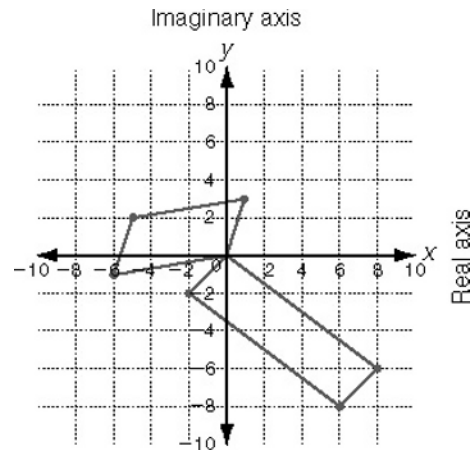


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|----------------|--------------------------------|
| 6. $2\sqrt{5}$ | 7. $\sqrt{26}$ |
| 8. 3 | 9. $5-7i$ |
| 10. $-1-10i$ | 11. $-7+10i$ |
| 12. $9+6i$ | 13. $3+14i$ |
| 14. $9+20i$ | 15. $\frac{4}{3}-\frac{2}{3}i$ |

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|-----------------------------------|-----------|
| 16. $\frac{14}{17}+\frac{5}{17}i$ | 17. $-2i$ |
| 18. $8+2i$ | |

Practice C

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|-------------------------|-------------------------------|
| 1. $6\sqrt{5}$ | 2. $\sqrt{65}$ |
| 3. $\frac{\sqrt{2}}{2}$ | 4. $13+3i$ |
| 5. $-8-17i$ | 6. $\frac{1}{4}-\frac{1}{2}i$ |
| 7. $-5+2i$ | 8. $6-8i$ |



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|-----------------------------------|---------------|
| 9. $\frac{53}{65}+\frac{31i}{65}$ | 10. $-14-80i$ |
| 11. $\frac{9}{5}+\frac{7i}{5}$ | 12. $2-i$ |
| 13. $-4i$ | 14. 10 |
| 15. $14+5i$ | |

Reteach

- | | |
|---------------|----------------|
| 6. 8 | 7. $\sqrt{5}$ |
| 8. 3 | 9. $\sqrt{29}$ |
| 10. 9 | 11. 5 |
| 12. $9-i$ | 13. $7-4i$ |
| 14. $4+8i$ | 15. $3-8i$ |
| 16. $-2i$ | 17. $-15+20i$ |
| 18. $10i$ | 19. $7+4i$ |
| 20. $-12+16i$ | |

Challenge

- Square roots should be simplified first.
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