

4.6

Practice B

In Exercises 1–3, find the square root of the number.

1. $3\sqrt{-25}$

2. $2\sqrt{-40}$

3. $4\sqrt{-54}$

In Exercises 4–7, find the values of x and y that satisfy the equation.

4. $2x - 3yi = 14 + 12i$

5. $\frac{1}{3}x - 6i = 8 - 3yi$

6. $22 + \frac{1}{5}yi = 2x - 2$

7. $-1 + 10i = -x + 3yi$

In Exercises 8–11, add or subtract. Write the answer in standard form.

8. $(9 + 6i) - (15 - 7i)$

9. $13 - (5 + i) + 7i$

10. $14 - (17 - 7i) + 8i$

11. $-4 + (9 - 2i) + 3i$

12. The additive inverse of a complex number z is a complex number z_a such that $z + z_a = 0$. Find the additive inverse of each complex number.

a. $z = 2 + 3i$

b. $z = 4 - 4i$

c. $z = -5 + 2i$

In Exercises 13–16, multiply. Write the answer in standard form.

13. $(4 + 7i)(5 + 2i)$

14. $(5 - 3i)(5 + 3i)$

15. $(10 - 7i)(10 + 7i)$

16. $(6 - 4i)^2$

17. Justify each step in performing the operation.

$$(6 - 2i)(8 - 3i)$$

$48 - 18i - 16i + 6i^2$	
$48 - 34i + 6i^2$	
$48 - 34i + 6(-1)$	
$42 - 34i$	

In Exercises 18–20, multiply the complex number by its complex conjugate.

18. $4 + 5i$

19. $6 - 4i$

20. $-2 - 5i$

21. Write the complex conjugate of $1 + \sqrt{-18}$. Then find the product of the complex conjugates.