Name_____ Date _____

3.2 Notetaking with Vocabulary (continued)

Sums and Differences of Complex Numbers

To add (or subtract) two complex numbers, add (or subtract) their real parts and their imaginary parts separately.

Sum of complex numbers: $(a + bi) + (c + di) = (a + c) + (b + d)i$

Difference of complex numbers: $(a + bi) - (c + di) = (a - c) + (b - d)i$

Notes:

Extra Practice

In Exercises 1–6, find the square root of the number.

1. $\sqrt{-49}$ **2.** $\sqrt{-4}$ **3.** $\sqrt{-45}$

4. $-2\sqrt{-100}$ **5.** $6\sqrt{-121}$ **6.** $5\sqrt{-75}$

In Exercises 7 and 8, find the values of *x* and *y* that satisfy the equation.

7. $-10x + i = 30 - yi$ **8.** $44 - \frac{1}{2}yi = -\frac{1}{4}x - 7i$

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3.2 Notetaking with Vocabulary (continued)

In Exercises 9–14, simplify the expression. Then classify the result as a *real number* or *imaginary number*. If the result is an *imaginary number*, specify if it is a *pure imaginary number*.

9. $(-8 + 3i) + (-1 - 2i)$

10. $(36 - 3i) - (12 + 24i)$

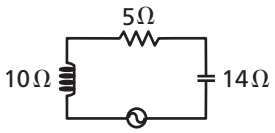
11. $(16 + i) + (-16 - 8i)$

12. $(-5 - 5i) - (-6 - 6i)$

13. $(-1 + 9i)(15 - i)$

14. $(13 + i)(13 - i)$

15. Find the impedance of the series circuit.



In Exercises 16–18, solve the equation. Check your solution(s).

16. $0 = 5x^2 + 25$

17. $x^2 - 10 = -18$

18. $-\frac{1}{3}x^2 = \frac{1}{5} + \frac{4}{3}x^2$

19. Sketch a graph of a function that has two real zeros at -2 and 2. Then sketch a graph on the same grid of a function that has two imaginary zeros of $-2i$ and $2i$. Explain the difference in the graphs of the two functions.