

5.9 Operations with Complex Numbers

Name: _____

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

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

4. $(13 + 6i) + (15 + 35i)$

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

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

3. $(4 - 2i) + (-9 - 5i)$

6. $-16 + (12 + 9i)$

Multiply. Write the results in $a + bi$.

7. $-12i(-1 + 4i)$

10. $(5 + 6i)^2$

8. $(3 - 5i)(2 + 9i)$

11. $(7 - 5i)(-3 + 9i)$

9. $(7 + 2i)(7 - 2i)$

12. $-4(8 + 12i)$

Conjugate the following expressions.

13. $3 + 8i$

15. $-39i$

14. $-12 - 80i$

16. $9 + 3i$

Simplify the following expressions.

17. i^{28}

22. $\frac{5-2i}{3+i}$

18. $-i^{11}$

23. $\frac{3}{-1-5i}$

19. $5i^{10}$

24. $\frac{19+9i}{5+i}$

20. $-\frac{5}{2}i^{45}$

25. $\frac{8+4i}{7+i}$

21. $\frac{2-3i}{i}$