

Section 3.3 – Complex Numbers

Problem Set 2

Simplify the following expressions.

1. $(-21 - 5i)(15 - 18i)$
2. $(-10 - 7i)(3 - 6i)$
3. $21i + 1 - 9 + 24i$
4. $(20 - 18i)(-17 + 7i)$
5. $\frac{-10 + 20i}{-14 + 21i}$
6. $(10 + 7i) - (5 + 5i)$
7. i^{108}
8. $(12 + 12i)(-20 - 13i)$
9. i^{-199}
10. $24i + 20i + 23 - 24$
11. $-22 + 12i - 15i - 22$
12. i^9
13. i^{47}
14. $10 - 1i - 8i + 6$
15. i^{42}
16. $(4 + 24i) - (-21 - 5i)$
17. $-12 + 5i - 21 + 1i$
18. $\frac{-1 - 14i}{-6 - 12i}$
19. i^{40}
20. $-17 - 24i - 10i - 25$
21. $5i - 13 - 5 - 4i$
22. $(-15 + 23i) - (-22 - 14i)$
23. $\frac{7 - 15i}{-1 - 12i}$
24. $\frac{23 + 17i}{13 + 9i}$
25. $\frac{10 + 3i}{-22 + 12i}$
26. $(-19 - 13i)(5 - 17i)$
27. $(11 + 13i) - (25 + 6i)$
28. $(-5 - 1i) - (17 - 23i)$
29. $(18 + 13i)(-21 + 25i)$
30. $\frac{-22 + 7i}{21i}$
31. $(24 - 21i) - (-17 + 21i)$
32. $(-22 + 9i)(1 - 18i)$
33. $(10 + 2i)(22 - 2i)$

Solve the following equations for x .

34. $-11x^2 - 4x - 20 = 0$
35. $-23s^2 - 14s - 11 = 0$
36. $-12b^2 - 4b - 20 = 0$
37. $-21y^2 - 2y - 12 = 0$
38. $-18x^2 + 19x - 14 = 0$
39. $25a^2 + 16a + 11 = 0$
40. $19t^2 + 24t + 23 = 0$
41. $-18b^2 - 6b - 9 = 3b^2 + b + 1$
42. $-14a^2 - a - 22 = -3a^2 - 4a$
43. $-15b^2 + 13b - 5 = 3b^2 - 4b$
44. $-17y^2 + 9y - 3 = 2y^2 - 2y - 1$
45. $-y^2 - 7y + 20 = -2y^2$