

Section 3.3 – Complex Numbers

Problem Set 1

Simplify the following expressions.

1. $\frac{12+2i}{-11+17i}$

2. $(2 - 12i) - (7 + 19i)$

3. $(-23 - 19i) - (8 - 4i)$

4. $\frac{-18+20i}{8+2i}$

5. $\frac{19+13i}{-11-16i}$

6. $(25 - 19i)(24 + 8i)$

7. $(-21 + 19i)(-21 + 22i)$

8. $11i + 13i + 4 - 18$

9. $\frac{-5+2i}{-25+16i}$

10. $-9 + 17i + 14 - 16i$

11. $(15 - 3i)(-14 + 3i)$

12. $\frac{25+4i}{-3-i}$

13. $(19 + 5i) - (1 + 10i)$

14. $(-23 + 12i)(3 + 5i)$

15. i^{122}

16. i^{85}

17. $-7 + 23 - 15i + 17i$

18. $(14 + 1i)(13 - 5i)$

19. $(16 + 14i)(-24 + 8i)$

20. $\frac{-4+7i}{4+23i}$

21. i^{19}

22. $-15i + 23 - 14i + 12$

23. i^{19}

24. $(-25 - 6i) - (25 - 14i)$

25. i^{75}

26. $16 - 16 - 9i + 1i$

27. $1i + 2i - 1 - 12$

28. i^{40}

29. $-10 - 5i - 6 - 10i$

30. $(-14 + 15i) - (-15 + 2i)$

31. $(8 + 15i) - (8 - 23i)$

32. $(-8 + 5i)(11 - 19i)$

33. $(-10 - 2i)(-19 - 9i)$

Solve the following equations for x .

34. $x^2 + 2x + 4 = 0$

35. $2x^2 + 5x + 6 = 0$

36. $x^2 + 3x = 2x - 5$

37. $x^2 + 4x - 7 = -12$

38. $3x^2 - 8x + 7 = 0$

39. $-18x^2 + 21x - 17 = -x$

40. $-x^2 + 2x = 5$

41. $3x^2 - 4x = -6$

42. $27t^2 + 2t + 7 = 4t^2 + 2$

43. $-16s^2 - 5s - 4 = s^2 + 2s + 4$

44. $45x^2 + x + 1 = 0$

45. $5x^2 + x + 7 = 2x^2 + 4$