Name_____ Class _____ Date_____

3-2 Practice

Complex Numbers

Simplify each number by using the imaginary number *i*.

1. $\sqrt{-49}$

2. $\sqrt{-144}$

3. $\sqrt{-7}$

4. $\sqrt{-10}$

5. $\sqrt{-8}$

6. $\sqrt{-48}$

Plot each complex number and find its absolute value.

7. $-3i$

8. $6 - 4i$

9. $-4 + 8i$

Simplify each expression.

10. $(-2 + 3i) + (5 - 2i)$

11. $(-6 + 7i) + (6 - 7i)$

12. $(4 - 2i) - (-1 + 3i)$

13. $(-5 + 3i) - (-8 + 2i)$

14. $(4 - 3i)(-5 + 4i)$

15. $(2 - i)(-3 + 6i)$

16. $(5 - 3i)(5 + 3i)$

17. $(-1 + 3i)^2$

18. $(4 - i)^2$

19. $(-2i)(5i)(-i)$

20. $\left(6 - \sqrt{-16}\right) + \left(-4 + \sqrt{-25}\right)$

21. $\left(-2 + \sqrt{-9}\right) + \left(-1 - \sqrt{-36}\right)$

22. $\left(-5 + \sqrt{-4}\right) + \left(3 - \sqrt{-16}\right)$

23. $\left(7 - \sqrt{-1}\right) - \sqrt{-81}$

24. $3i(2 + 2i)$

25. $2(3 - 7i) - i(-4 + 5i)$

26. $\left(2 + \sqrt{-4}\right)\left(-1 + \sqrt{-9}\right)$

27. $\left(5 + \sqrt{-1}\right)\left(2 - \sqrt{-36}\right)$

3-2 **Practice** (continued)

Complex Numbers

Write each quotient as a complex number.

28. $\dfrac{5 + 2i}{4i}$

29. $\dfrac{3i}{-2 + i}$

30. $\dfrac{3 - 2i}{4 - 3i}$

31. $\dfrac{7}{5 - 2i}$

Solve each equation. Check your answer.

32. $x^2 + 64 = 0$

33. $3x^2 + 27 = 0$

34. $4x^2 + 1 = 0$

35. $x^2 = -11$

36. $2x^2 + 5 = -31$

37. $-3x^2 = 16$