

## 4-8

## Practice

Form G

## 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.  $(6 - \sqrt{-16}) + (-4 + \sqrt{-25})$

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

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

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

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

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

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

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

## 4-8

## Practice (continued)

Form G

## Complex Numbers

Write each quotient as a complex number.

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

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

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

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

Find the factors of each expression. Check your answer.

32.  $x^2 + 36$

33.  $2x^2 + 8$

34.  $5x^2 + 5$

35.  $x^2 + \frac{1}{9}$

36.  $16x^2 + 25$

37.  $-4x^2 - 49$

Find all solutions to each quadratic equation.

38.  $x^2 + 2x + 5 = 0$

39.  $-x^2 + 2x - 10 = 0$

40.  $2x^2 - 3x + 5 = 0$

41.  $-4x^2 + 6x - 3 = 0$

42.  $3x^2 + 2x + 5 = 0$

43.  $2x^2 - 2x + 7 = 0$

44. a. Name the complex number represented by each point on the graph at the right.  
 b. Find the additive inverse of each number.  
 c. Find the complex conjugate of each number.  
 d. Find the absolute value of each number.

