

Chapter 5: Quadratic Functions

Date _____ Period _____

Find the absolute value of each complex number.

1) $|6 - 2i|$

2) $|5 - i|$

3) $|-10 + 2i|$

4) $|10 - 8i|$

Simplify.

5) $\frac{4i}{4 - 8i}$

6) $\frac{7}{-7i}$

7) $\frac{4i}{-9 - 9i}$

8) $-\frac{5}{5i}$

9) $-\frac{5}{3i}$

10) $\frac{2 + 2i}{-2i}$

11) $\frac{-3}{-2i}$

12) $\frac{9}{4i}$

13) $(-4i)(4i)(-7 + 2i)$

14) $(8 + 7i)^2$

15) $(3 + i)^2$

16) $(2 + i)(-6 - 5i)$

17) $(5 - i)^2$

18) $(-4 + i)^2$

19) $(7 - i) - (3 + 5i)$

20) $(8 + 8i) + (4 + 6i)$

21) $(-5 + 7i) + (-7 - 3i)$

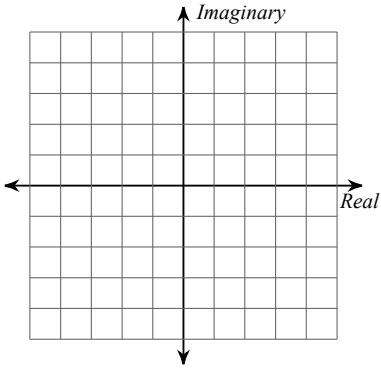
22) $(-7 - 7i) - (6 - 5i)$

23) $(-7 - 3i) - (-3 + 7i)$

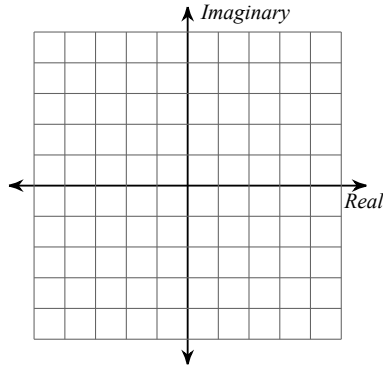
24) $(8 + 7i) + (-5 + 3i)$

Graph each number in the complex plane.

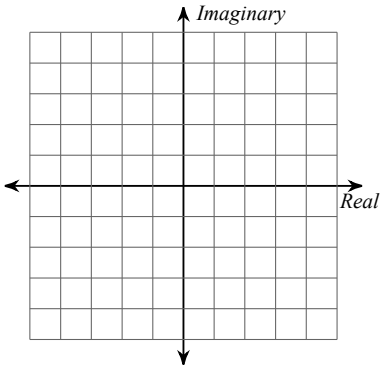
25) $-3 + i$



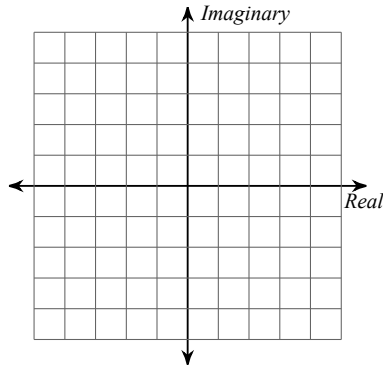
26) -1



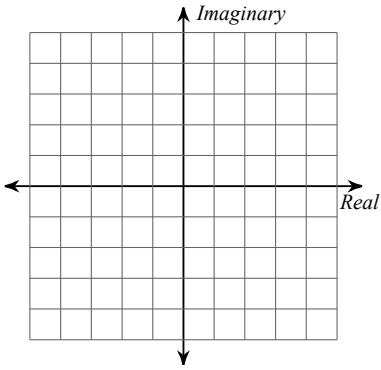
27) -2



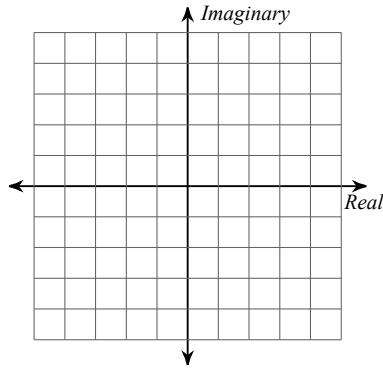
28) $1 + 5i$



29) $-2 + 4i$

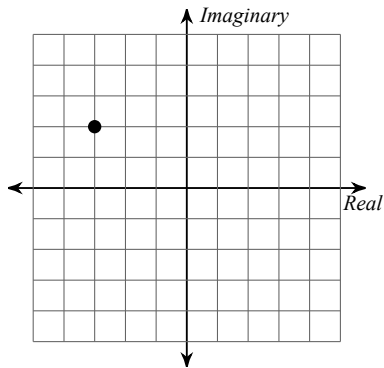


30) $5 - i$

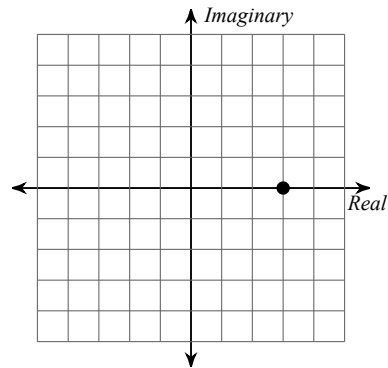


Identify each complex number graphed.

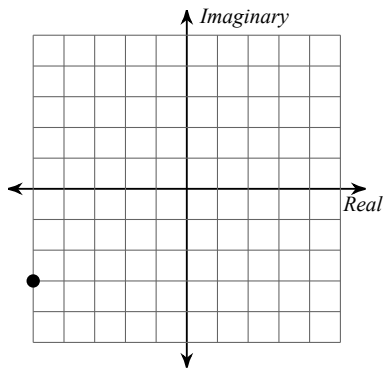
31)



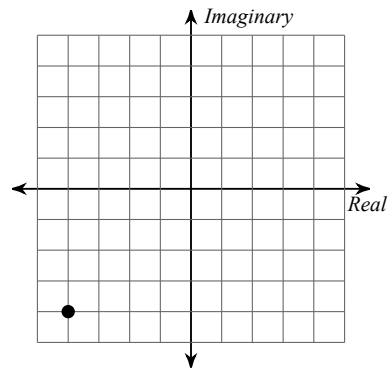
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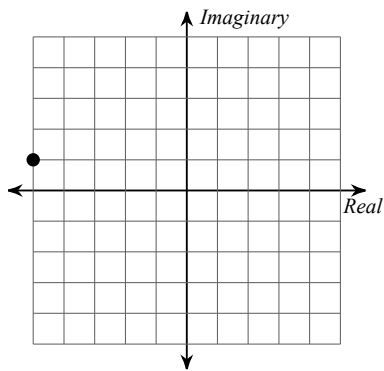
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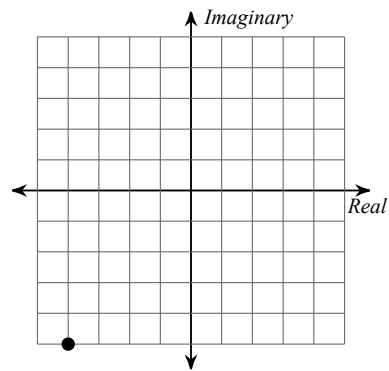
34)



35)



36)



Find the value that completes the square and then rewrite as a perfect square.

37) $n^2 + 24n + \underline{\quad}$

38) $x^2 + 28x + \underline{\quad}$

39) $x^2 + 3x + \underline{\quad}$

40) $r^2 - 19r + \underline{\quad}$

41) $x^2 - 6x + \underline{\quad}$

42) $y^2 - 18y + \underline{\quad}$

Solve each equation by completing the square.

43) $v^2 + 14v - 6 = 9$

44) $p^2 - 2p - 21 = -7$

45) $n^2 + 8n - 13 = 8$

46) $b^2 + 6b - 82 = -10$

Solve each equation with the quadratic formula.

47) $8n^2 + 1 = 0$

48) $4x^2 + 7x = 65$

$$49) 6x^2 + 10 = -6x$$

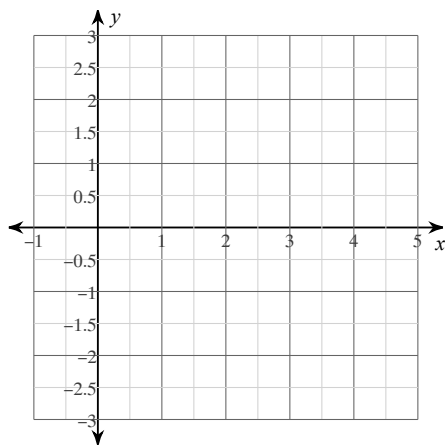
$$50) 2m^2 = 12m - 15$$

$$51) 12m^2 + 11m = -10$$

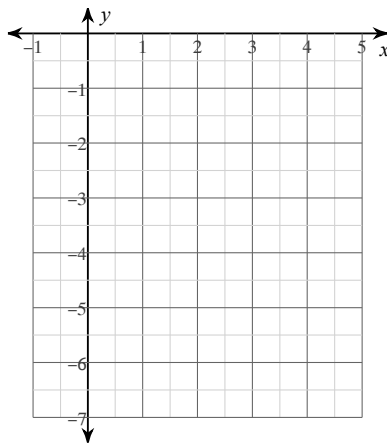
$$52) 3x^2 = 33 + 2x$$

Sketch the graph of each inequality.

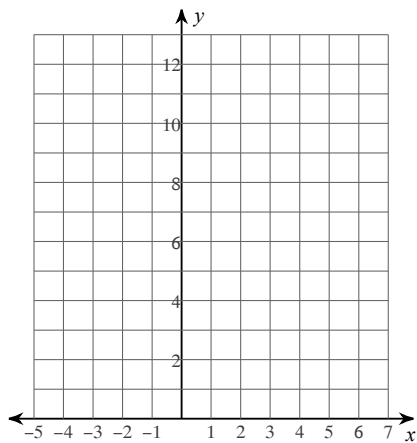
$$53) y \leq x^2 - 4x + 2$$



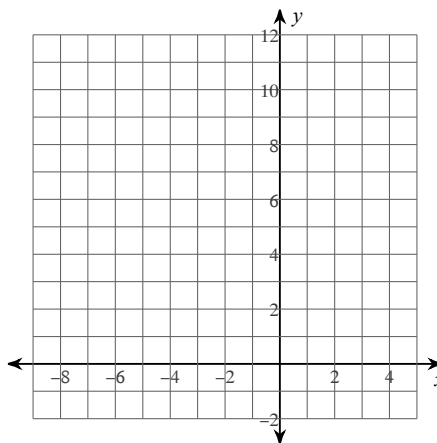
$$54) y > -\frac{1}{2}x^2 + 2x - 6$$



55) $y > 2x^2 - 8x + 12$



56) $y \leq 3x^2 - 12x + 11$



Answers to Chapter 5: Quadratic Functions (ID: 2)

1) $2\sqrt{10}$

2) $\sqrt{26}$

3) $2\sqrt{26}$

4) $2\sqrt{41}$

5) $\frac{i-2}{5}$

6) i

7) $\frac{-2i-2}{9}$

8) i

9) $\frac{5i}{3}$

10) $i-1$

11) $-\frac{3i}{2}$

12) $-\frac{9i}{4}$

13) $-112 + 32i$

14) $15 + 112i$

15) $8 + 6i$

16) $-7 - 16i$

17) $24 - 10i$

18) $15 - 8i$

19) $4 - 6i$

20) $12 + 14i$

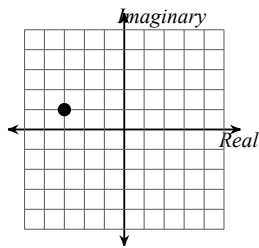
21) $-12 + 4i$

22) $-13 - 2i$

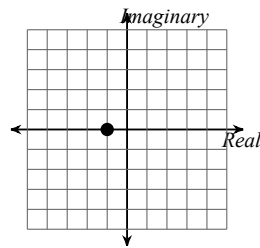
23) $-4 - 10i$

24) $3 + 10i$

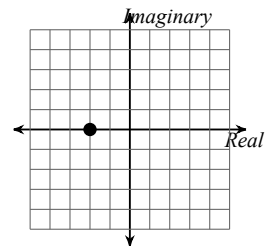
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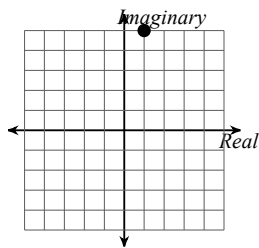
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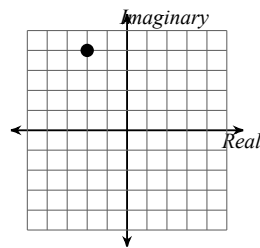
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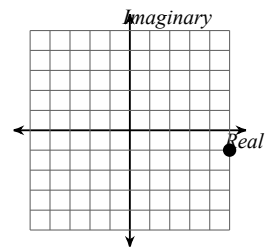
28)



29)



30)



31) $-3 + 2i$

32) 3

33) $-5 - 3i$

34) $-4 - 4i$

35) $-5 + i$

36) $-4 - 5i$

37) 144; $(n+12)^2$

38) 196; $(x+14)^2$

39) $\frac{9}{4}; \left(x + \frac{3}{2}\right)^2$

40) $\frac{361}{4}; \left(r - \frac{19}{2}\right)^2$

41) 9; $(x-3)^2$

42) 81; $(y-9)^2$

43) $\{1, -15\}$

44) $\{1 + \sqrt{15}, 1 - \sqrt{15}\}$

45) $\{-4 + \sqrt{37}, -4 - \sqrt{37}\}$

46) $\{6, -12\}$

47) $\left\{\frac{i\sqrt{2}}{4}, -\frac{i\sqrt{2}}{4}\right\}$

48) $\left\{\frac{13}{4}, -5\right\}$

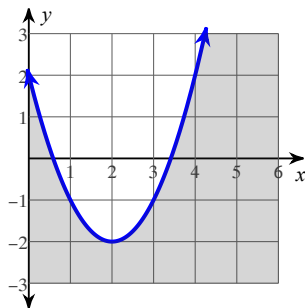
49) $\left\{\frac{-3 + i\sqrt{51}}{6}, \frac{-3 - i\sqrt{51}}{6}\right\}$

50) $\left\{\frac{6 + \sqrt{6}}{2}, \frac{6 - \sqrt{6}}{2}\right\}$

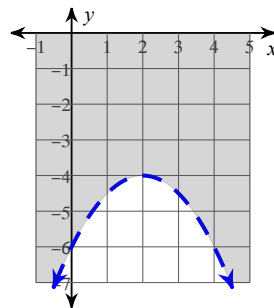
51) $\left\{\frac{-11 + i\sqrt{359}}{24}, \frac{-11 - i\sqrt{359}}{24}\right\}$

52) $\left\{\frac{11}{3}, -3\right\}$

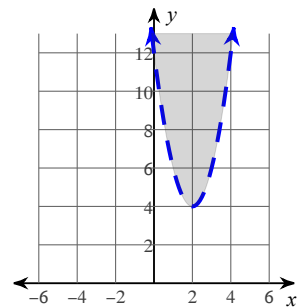
53)



54)



55)



56)

