

Chapter 5: Quadratic Functions

Date _____ Period _____

Find the absolute value of each complex number.

1) $|3 + 9i|$

2) $|-10 + 5i|$

3) $|-5 - 9i|$

4) $|9 - 5i|$

Simplify.

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

6) $\frac{7i}{9 - 3i}$

7) $\frac{10 - 9i}{-10i}$

8) $\frac{-5 - 10i}{-2i}$

9) $\frac{-3}{-4i}$

10) $\frac{3 + 5i}{-3i}$

11) $\frac{1 - 7i}{2 + 9i}$

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

13) $(-6 - 7i)^2$

14) $(4i)(6i)(4 + 4i)$

15) $(-2 + 4i)(-6 - i)$

16) $(-8 + 5i)(-6 - 8i)$

17) $(7 - 8i)(6 + 4i)$

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

19) $(-6 + 4i) + (-7 - 5i)$

20) $(2 + 3i) - (8 - i)$

21) $(1 - 4i) - (7 - 3i)$

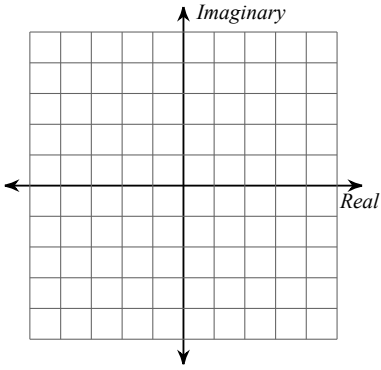
22) $4 - (-5 + i) + (2i)$

23) $(8 - 3i) - 5 - (6i)$

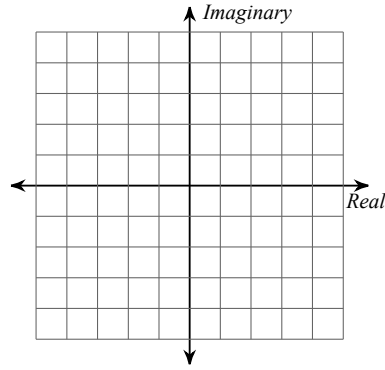
24) $(1 + i) - (-7 + 6i)$

Graph each number in the complex plane.

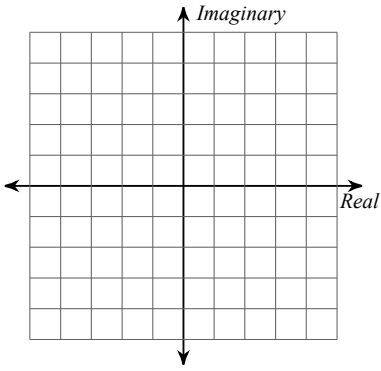
25) $2 - 4i$



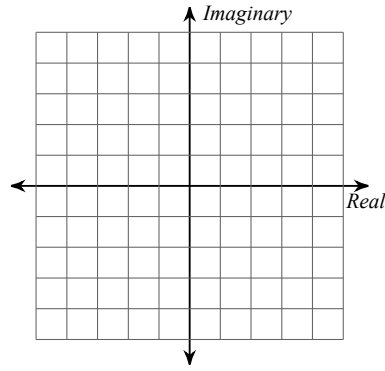
26) $-3 + i$



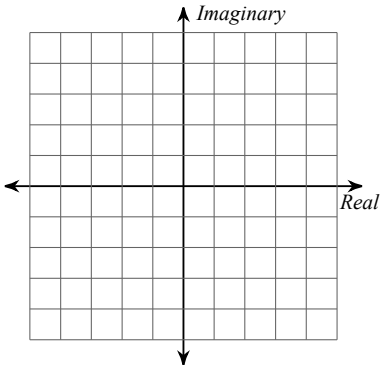
27) $1 + 2i$



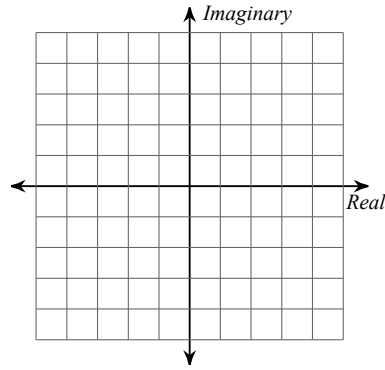
28) $2 - 3i$



29) $-4 - i$

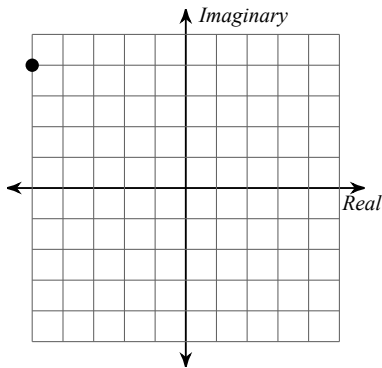


30) 1

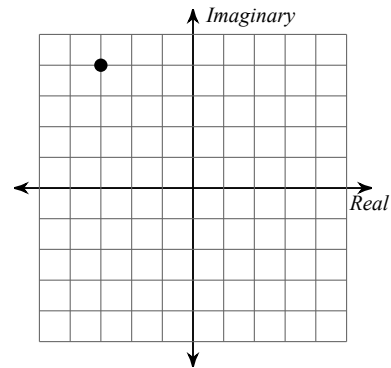


Identify each complex number graphed.

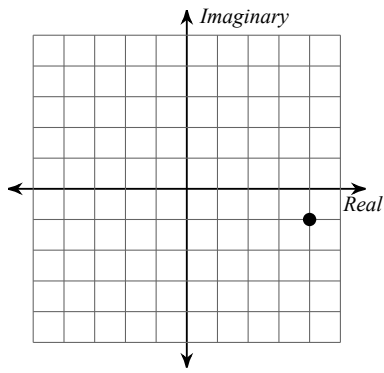
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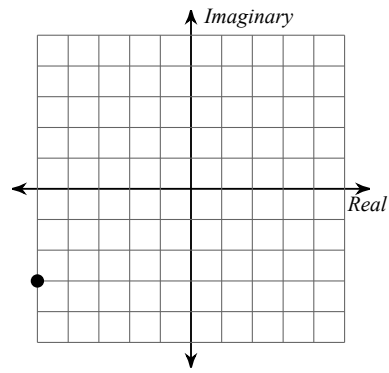
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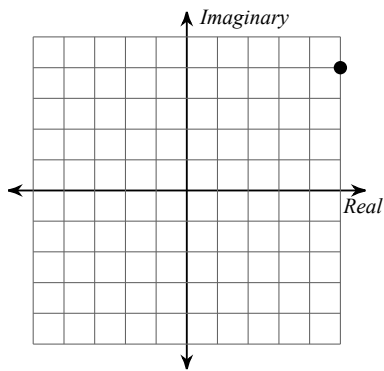
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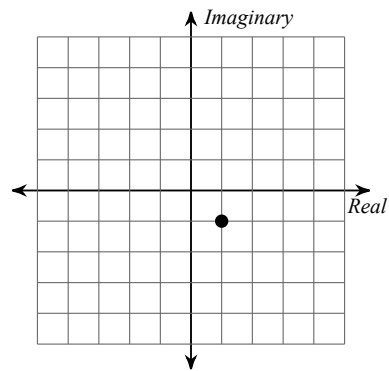
34)



35)



36)



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

37) $x^2 + 22x + \underline{\quad}$

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

39) $r^2 + 15r + \underline{\quad}$

40) $m^2 + 32m + \underline{\quad}$

41) $y^2 + 17y + \underline{\quad}$

42) $p^2 + 36p + \underline{\quad}$

Solve each equation by completing the square.

43) $m^2 + 6m - 42 = -4$

44) $p^2 - 16p + 36 = -3$

45) $k^2 + 20k + 12 = -7$

46) $n^2 + 10n - 18 = 6$

Solve each equation with the quadratic formula.

47) $2a^2 - 15 = a$

48) $2x^2 + 6x = -11$

$$49) 11v^2 = -7 - 7v$$

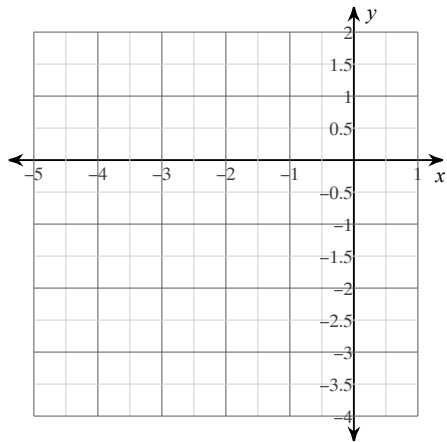
$$50) 5k^2 - 108 = 7k$$

$$51) 3m^2 + 9 = -12m$$

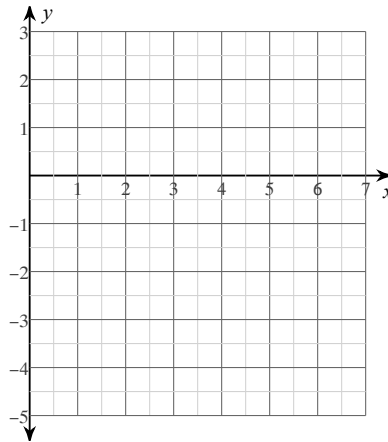
$$52) n^2 = 100$$

Sketch the graph of each inequality.

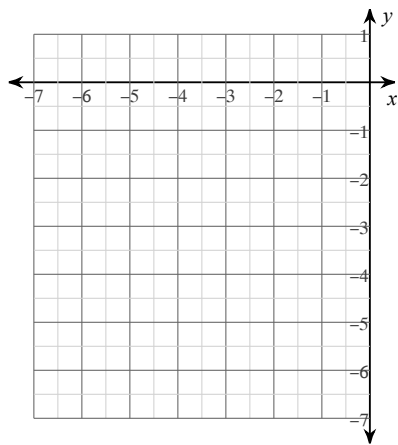
$$53) y \leq \frac{1}{2}x^2 + 2x$$



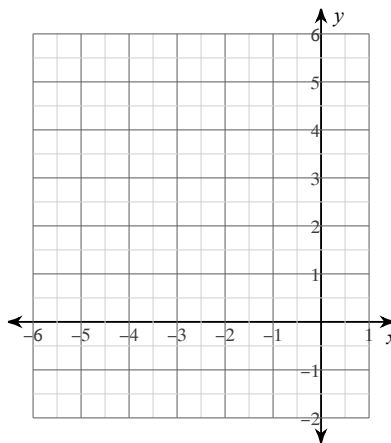
$$54) y < \frac{1}{2}x^2 - 4x + 6$$



55) $y < -x^2 - 8x - 17$



56) $y < \frac{1}{2}x^2 + 4x + 9$



Answers to Chapter 5: Quadratic Functions (ID: 1)

1) $3\sqrt{10}$

2) $5\sqrt{5}$

3) $\sqrt{106}$

4) $\sqrt{106}$

5) $\frac{-27 - 38i}{53}$

6) $\frac{21i - 7}{30}$

7) $\frac{10i + 9}{10}$

8) $\frac{-5i + 10}{2}$

9) $-\frac{3i}{4}$

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

11) $\frac{-61 - 23i}{85}$

12) $9i$

13) $-13 + 84i$

14) $-96 - 96i$

15) $16 - 22i$

16) $88 + 34i$

17) $74 - 20i$

18) $-8i$

19) $-13 - i$

20) $-6 + 4i$

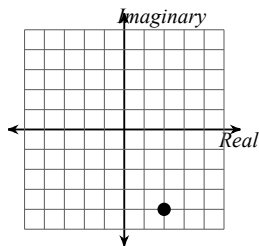
21) $-6 - i$

22) $9 + i$

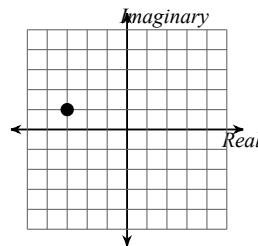
23) $3 - 9i$

24) $8 - 5i$

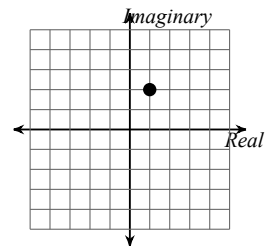
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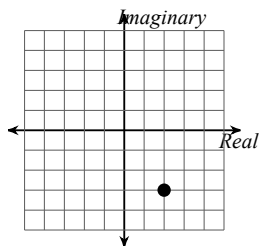
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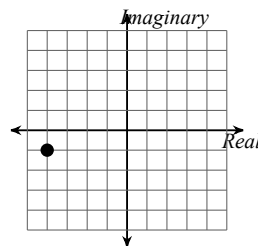
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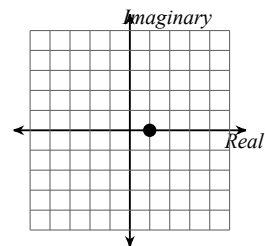
28)



29)



30)



31) $-5 + 4i$

32) $-3 + 4i$

33) $4 - i$

34) $-5 - 3i$

35) $5 + 4i$

36) $1 - i$

37) $121; (x + 11)^2$

38) $9; (x - 3)^2$

39) $\frac{225}{4}; \left(r + \frac{15}{2}\right)^2$

40) $256; (m + 16)^2$

41) $\frac{289}{4}; \left(y + \frac{17}{2}\right)^2$

42) $324; (p + 18)^2$

43) $\{-3 + \sqrt{47}, -3 - \sqrt{47}\}$

44) $\{13, 3\}$

45) $\{-1, -19\}$

46) $\{2, -12\}$

47) $\left\{3, -\frac{5}{2}\right\}$

48) $\left\{\frac{-3 + i\sqrt{13}}{2}, \frac{-3 - i\sqrt{13}}{2}\right\}$

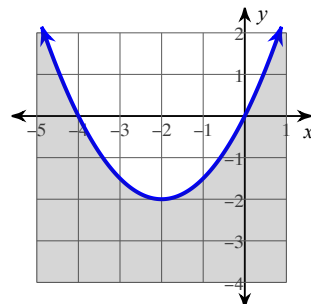
49) $\left\{\frac{-7 + i\sqrt{259}}{22}, \frac{-7 - i\sqrt{259}}{22}\right\}$

50) $\left\{\frac{27}{5}, -4\right\}$

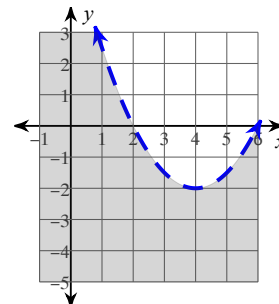
51) $\{-1, -3\}$

52) $\{10, -10\}$

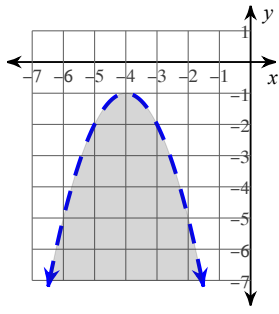
53)



54)



55)



56)

