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**Chapter 11**
**Form A**

1. Find the distance between (–2, –3) and (4, 6). If necessary, round the answer to 2 decimal places. 1. _____

2. Find the midpoint of the line-segment whose endpoints are (–3, 6) and (–1, 8). 2. _____

For problems 3 – 4, (a) what constant term completes the square for each binomial. Then (b) factor the resulting square trinomial.

3. $x^2 + 14x$ 3. _____

4. $x^2 - x$ 4. _____

5. Solve by completing the square $2x^2 - 6x + 2 = 0$. 5. _____

For problems 6 – 7, solve by the quadratic formula.

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

7. $x^2 - 2x - 8 = 0$ 7. _____

8. Find the distance between (–2, –3) and (4, 6). If necessary, round the answer to 2 decimals places. 8. _____

9. Find the midpoint of the line-segment whose endpoints are 9. _____

For problems 10 – 11, write a quadratic equation in standard form with the given solution set.

10. $\left\{-\frac{4}{3}, \frac{2}{5}\right\}$ 10. _____

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11. $\{-4i, 4i\}$ 11. _____

For problems 12 – 16, solve using the method of your choice.

12. $(3x+2)^2 - 4 = 0$ 12. _____

13. $(x+1)(x-3) = 6$ 13. _____

14. $\frac{1}{x+1} + \frac{2}{x+2} = 4$ 14. _____

15. $x^4 - 6x^3 + 5 = 0$ 15. _____

16. $2x + x^{\frac{1}{2}} - 3 = 0$ 16. _____

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For problems 17 – 18, find the (a) vertex, (b) $x$-intercepts, (c) $y$-intercept, (d) axis of symmetry, and (e) graph the function. Round irrational numbers to the nearest hundredth.

17. $f(x) = -(x-2)^2 + 3$

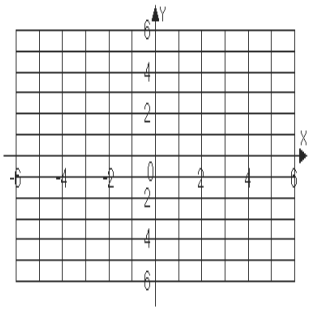
17a. _____

b. _____

c. _____

d. _____

e.




18. $f(x) = 2x^2 - 2x - 4$

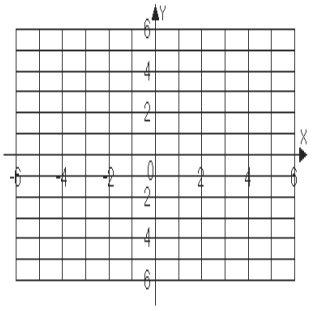
18a. _____

b. _____

c. _____

d. _____

e.




19. The number of inches that a young redwood tree grows per year can be modeled by $f(x) = 0.05x^2 + x + 1$, where $x$ represents annual rainfall in inches, and $f(x)$ is the tree's annual growth, in inches. How many inches of rainfall produces the maximum annual growth in the tree?

19. _____

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20. The distance $h$ traveled in $t$ seconds by an object dropped from a certain height is $h = 16t^2$. If an object is dropped from a height of 27 feet, how long will it take before the object hits the ground? Leave your answer in simplified radical form. 20. _____

21. A ball is thrown straight up from a rooftop 128 feet high with an initial speed of 40 feet per second. The function $s(t) = 16t^2 + 40t + 128$ models the ball's height above the ground, $s(t)$, in feet, $t$ seconds after it was thrown. During which time period will the ball's height exceed that of the rooftop? 21. _____

## Chapter 11 Answers

### Form A

1. $\left\{\frac{3\pm3\sqrt{2}}{2}\right\}$ 2. $\{-4\pm3i\}$ 3a. 4 b. $(x-2)^2$ 4a. $\frac{1}{4}$ b. $\left(x-\frac{1}{2}\right)^2$ 5. $\frac{3\pm\sqrt{5}}{6}$

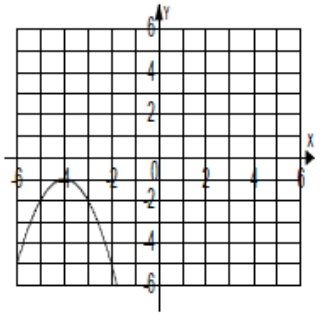
6. $\left\{\frac{2\pm\sqrt{14}i}{3}\right\}$ 7. $\{-2, 4\}$ 8. 10.82 9. $(-2, 7)$ 10. $8x^2-2x-3=0$ 11. $x^2+49=0$

12. $\left\{-\frac{4}{3},0\right\}$ 13. $\{1\pm\sqrt{10}\}$ 14. $\left\{\frac{-9\pm\sqrt{7}i}{8}\right\}$ 15. $\{\pm\sqrt{5},\pm1\}$ 16. $\{1\}$

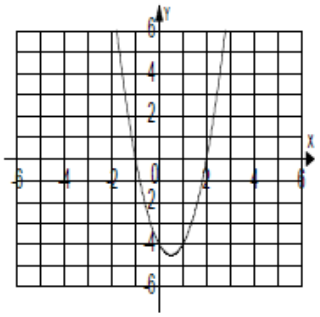
17. a. $(-4, -1)$ b. None c. $(0, -17)$

d. $x=-4$

e.



18 a. $\left(\frac{1}{2},-\frac{9}{2}\right)$ b. $(-1,0),(2,0)$ c. $(0,-4)$ d. $x=\frac{1}{2}$ e.



19. 10 in. 20. $\sqrt{2}$ sec 21. $\left(0,\frac{5}{2}\right)$