9.4 WS from the WB

In Exercises 1–6, complete the square for the expression. Then factor the trinomial.

1. $x^2 + 12x$

2. $x^2 - 14x$

3. $x^2 + 4x$

4. $x^2 + 18x$

5. $x^2 - 7x$

6. $x^2 + 11x$

In Exercises 7–18, solve the equation by completing the square. Round your solutions to the nearest hundredth, if necessary.

7. $x^2 - 8x = -15$

8. $x^2 + 2x = 3$

9. $x^2 + 7x = 30$

10. $x^2 - 26x = -9$

11. $x^2 - 12x = 10$

12. $x^2 - 15x = 18$

13. $x^2 - 12x + 9 = 0$ **14.** $x^2 + 14x - 10 = 0$ **15.** $x^2 + 2x - 99 = 0$

16. $10x^2 - 13x - 9 = 0$ **17.** $3x^2 + 6x - 1 = 0$ **18.** $12x^2 - 8x - 2 = 0$

In Exercises 19–24, determine whether the quadratic function has a maximum or minimum value. Then find the value.

19. $y = -x^2 + 4x + 3$ **20.** $y = x^2 + 6x + 10$ **21.** $y = -x^2 + 8x - 2$

22. $y = x^2 - 10x + 8$ **23.** $y = 3x^2 + 3x - 1$ **24.** $y = -4x^2 + 8x + 12$

25. A diver jumps off a diving board. The function $h = -16x^2 + 6x + 5$ represents the height (in feet) of the diver after x seconds. What is the maximum height above the water of the diver? How many seconds did it take for the diver to reach the maximum height? Round your answers to the nearest hundredth.