Quadratic Equations Practice

Choose one answer per question. Circle A, B, C, or D.

1. Which equation is quadratic after moving all terms to one side and combining like terms?
   A. $5x^2 - 2x = 9$
   B. $4x + 3 = 0$
   C. $x^3 + x = 1$
   D. $2x^2 + x = 2x^2 - 5$

2. Move $7x$ to the left in $4x^2 + 5 = 7x$. In the resulting equation $ax^2 + bx + c = 0$, what is b?
   A. 4
   B. 7
   C. -7
   D. 5

3. Which listed value is a solution of $x^2 + 4x - 12 = 0$?
   A. -2
   B. 2
   C. 3
   D. -3

4. What are all the real solutions of $6x^2 = 150$?
   A. -6 and 6
   B. 5 only
   C. -25 and 25
   D. -5 and 5

5. What are all the real solutions of $(x + 3)^2 = 49$?
   A. -4 and 10
   B. -10 and 4
   C. -7 and 7
   D. 4 only

6. In $x^2 - 18x = 7$, what number should be added to both sides to make the left side a perfect square?

A. 81
B. 9
C. 36
D. 324

7. What are the exact real solutions of $x^2 + 10x + 11 = 0$?

A. $-5 \pm \sqrt{36}$
B. $5 \pm \sqrt{14}$
C. $-5 \pm \sqrt{11}$
D. $-5 \pm \sqrt{14}$

8. How many distinct real solutions does $2x^2 - 4x + 7 = 0$ have?

A. Two
B. One
C. None
D. Infinitely many

9. What is the complete set of real solutions of $4x^2 + 12x + 9 = 0$?

A. $-3/2$ only
B. $3/2$ only
C. $-3/2$ and $3/2$
D. -3 only

10. What are the exact solutions of $3x^2 - 4x - 1 = 0$?

A. $(-2 \pm \sqrt{7})/3$
B. $(4 \pm \sqrt{7})/3$
C. $(2 \pm \sqrt{7})/6$
D. $(2 \pm \sqrt{7})/3$

11. Which equation has exactly the same real solutions as $2x^2 - 12x + 7 = 0$?

A. $(x - 6)^2 = 65/2$
B. $(x + 3)^2 = 11/2$
C. $(x - 3)^2 = 11/2$
D. $(x - 3)^2 = 25/2$

12. Which values of k make $3x^2 + kx + 12 = 0$ have exactly one distinct real solution?

A. -6 and 6
B. -12 and 12
C. 12 only
D. -12 only

13. The equation $(x - h)^2 = d$ has real solutions -3 and 7. What are h and d?

A. $h = -2$ and $d = 25$
B. $h = 2$ and $d = 5$
C. $h = 5$ and $d = 4$
D. $h = 2$ and $d = 25$

14. A rectangular tile has an area of 48 square centimeters. Its length is 3 centimeters greater than its width. What is its exact width in centimeters?

A. $(-3 + \sqrt{201})/2$
B. $(-3 - \sqrt{201})/2$
C. $(3 + \sqrt{201})/2$
D. $(-3 + \sqrt{57})/2$

15. A fictional animation shows a light only from $t = 2$ through $t = 7$ seconds. Its height in meters is $h(t) = -2t^2 + 16t + 4$. At what time shown does the light reach 22 meters?

A. Both $4 - \sqrt{7}$ and $4 + \sqrt{7}$ seconds
B. $4 - \sqrt{7}$ seconds
C. $4 + \sqrt{7}$ seconds
D. $4 + \sqrt{14}$ seconds