NAME Answer Key DATE _____ PERIOD _____

3.4 - Solve Quadratic Equations by Factoring · Form A

All work must be completed, clearly, on a separate page. Circle/Box final answers only on WS. No work = No credit.

Examples 1 and 2

Solve each equation by factoring. Check your solution.

1. $x^2 = 7x$ $\{0, 7\}$

2. $x^2 + x - 30 = 0$ $\{-6, 5\}$

3. $x^2 - 3x = 10$ $\{-2, 5\}$

Example 3

4. PHOTOGRAPHY The length and width of a 6-inch by 8-inch photograph are reduced by the same amount to make a new photograph with area that is half that of the original. By how many inches will the dimensions of the photograph have to be reduced? 2" shorter

Example 4

Solve each equation by factoring. Check your solution.

5. $6x^2 - 5x - 4 = 0$ $\{-1/2, 4/3\}$

6. $12x^2 - 8x + 1 = 0$ $\{1/6, 1/2\}$

7. $3x^2 + 2x = 21$ $\{-3, 7/3\}$

Example 5–7

Solve each equation by factoring. Check your solution.

8. $x^2 - 100 = 0$ $\{-10, 10\}$

9. $x^2 + 14 = 50$ $\{-6, 6\}$

10. $124 = x^2 + 3$ $\{-11, 11\}$

11. $9x^2 + 6x = -1$ $\{-1/3\}$

12. $81x^2 + 36x = -4$ $\{-2/9\}$

13. $9x^2 + 60x + 95 = -5$ $\{-10/3\}$

14. $x^2 + 100 = 0$ $\{10i, -10i\}$

15. $x^2 + 4 = 0$ $\{2i, -2i\}$

16. $64x^2 = -49$ $\{-7/8 i, 7/8 i\}$

Mixed Exercises

STRUCTURE Solve each equation by factoring. Check your solution.

17. $27x^2 + 5 = 48x$ $\{1/9, 5/3\}$

18. $45x^2 - 3x = 2x$ $\{0, 1/9\}$

19. $16x^2 + 8x = -1$ $\{-1/4\}$

20. ANIMATION A computer graphics animator would like to make a realistic simulation of a tossed ball. The animator wants the ball to follow the parabolic trajectory represented by $f(x) = -0.2(x + 5)(x - 5)$.

a. What are the solutions of $f(x) = 0$? $\{-5, 5\}$

b. If the animator changes the equation to $f(x) = -0.2x^2 + 20$, what are the solutions of $f(x) = 0$?

$\{-10, 10\}$

21. Find two consecutive odd positive integers whose product is 323.

$\{17, 19\}$