Name _____ Date _____

Solving Quadratic Equations by Taking Square Roots

Directions: Each question is about solving a quadratic equation by taking square roots. Check each solution in the original equation.

1. What are the solutions of $x^2 = 49$?

A. $x = 7$ only

B. $x = -49$ or $x = 49$

C. $x = -7$ or $x = 7$

D. $x = -24.5$ or $x = 24.5$

2. What is the best first step to solve $3x^2 - 12 = 0$ by taking square roots?

A. Divide only the $3x^2$ by 3 to get $x^2 - 12 = 0$.

B. Add 12 to both sides to get $3x^2 = 12$.

C. Subtract 12 from both sides to get $3x^2 = -12$.

D. Take the square root of each term before doing anything else.

3. Jen solved $x^2 = 36$ and wrote that the only solution is $x = 6$. Which statement explains what she missed?

A. $(-6)^2$ is also 36, so $x = -6$ is a solution too.

B. Every equation has exactly two solutions, so she needed another one.

C. The square root of 36 is 18, so $x = 18$ is also a solution.

D. x^2 means $2x$, so the solution should be $x = 18$.

4. What is the greater solution of $5x^2 - 45 = 0$?

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5. Solve $(x - 2)^2 = 25$. Which choice gives all of its solutions?

A. $x = 7$ only

B. $x = -3$ or $x = 7$

C. $x = -23$ or $x = 27$

D. $x = -7$ or $x = 3$

6. Liam solved $2(x + 1)^2 = 50$, but his work has a mistake.

1. $(x + 1)^2 = 25$
2. $x + 1 = 5$
3. $x = 4$

Where does his work first go wrong?

A. Dividing both sides by 2 to get $(x + 1)^2 = 25$

B. Subtracting 1 from both sides to get $x = 4$

C. Going from $(x + 1)^2 = 25$ to $x + 1 = 5$

7. Which statement about the solutions of $x^2 + 9 = 0$ is true?

A. The solutions are $x = -3$ or $x = 3$.

B. The only solution is $x = -3$.

C. The only solution is $x = 0$.

D. It has no real solution, because x^2 would have to equal -9, and no real number squared is negative.

8. A square garden has an area of 196 square feet. How long is each side of the garden?

_____ feet

9. Find the greater solution of $4x^2 - 9 = 0$. Give your answer as a decimal.

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10. Which of these equations have $x = -4$ as a solution? Select the three correct equations.

☐ A. $(x + 1)^2 = 9$ ☐ B. $x^2 + 16 = 0$ ☐ C. $x^2 = 16$

☐ D. $(x - 1)^2 = 9$ ☐ E. $2x^2 - 32 = 0$