

Algebra 2 - Radical and Rational Equations - Quiz

Common Core A-REI.A.2 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

Answer ten multiple-choice questions on radical and rational equations. Choose one option for each question, then read the explanation to see why the correct choice works and which mistake, such as keeping an extraneous solution, each wrong choice shows.

Algebra 2 · Common Core State Standards: **A-REI.A.2**

Questions

Question 1

Solve $\sqrt{x} = 6$.

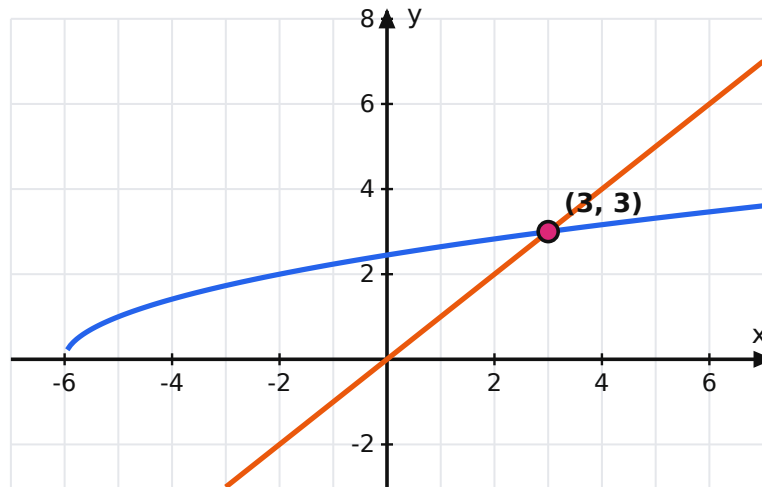
- A. $x = 12$
- B. $x = 36$
- C. $x = \pm 36$
- D. $x = 6$

Question 2

What is an extraneous solution?

- A. A solution that is a fraction
- B. A value that solves the transformed equation but not the original
- C. A solution that is negative
- D. A solution found by factoring

Question 3



Graphs of both sides of $\sqrt{x + 6} = x$.

How many solutions does $\sqrt{x + 6} = x$ have?

- A. 0
- B. 2
- C. 3
- D. 1

Question 4

Solve $\frac{4}{x} = \frac{2}{5}$.

- A. $x = 10$
- B. $x = 1.6$
- C. $x = 0.1$
- D. $x = 8$

Question 5

Which value must be excluded in $\frac{3}{x-5} + 1 = \frac{x}{x-5}$?

- A. $x = 0$
- B. $x = 3$
- C. $x = 5$
- D. $x = -5$

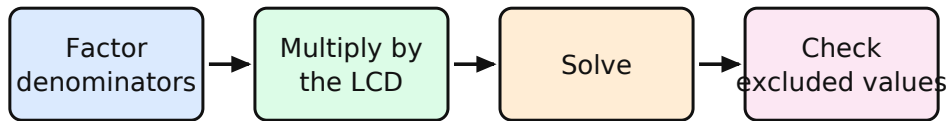
Question 6

Solve $\sqrt{x-1} + 2 = 5$.

- A. $x = 4$
- B. $x = 6$
- C. $x = 10$

D. $x = 26$

Question 7



Reject any solution that makes a denominator zero.

Which step comes after multiplying a rational equation by the LCD and solving?

- A. Check for excluded values
- B. Square both sides
- C. Add the denominators
- D. Take the reciprocal

Question 8

Solve $\sqrt[3]{x} = -2$.

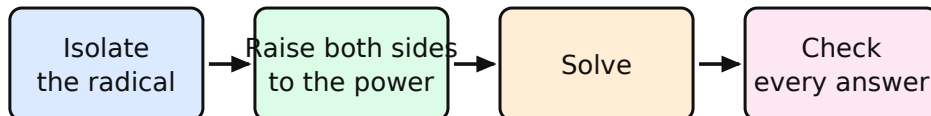
- A. $x = -8$
- B. $x = 8$
- C. *No solution*
- D. $x = -6$

Question 9

Solve $\frac{1}{x} + \frac{1}{2x} = \frac{3}{4}$.

- A. $x = \frac{1}{2}$
- B. $x = 4$
- C. $x = 3$
- D. $x = 2$

Question 10



Always check: squaring can add extraneous solutions.

What should you do first when solving $\sqrt{x + 2} + 3 = x + 1$?

- A. Square both sides immediately
- B. Isolate the radical
- C. Multiply by the LCD
- D. Add 3 to both sides of only one term

Answers

1. **B** - Square both sides: $x = 36$. The principal root is nonnegative, so there is only one solution.
2. **B** - Extraneous solutions are introduced by steps such as squaring or multiplying by an expression that could be zero.
3. **D** - The graphs cross only once, at (3, 3). The value $x = -2$ from squaring is extraneous.
4. **A** - Cross multiply: $2x = 20$, so $x = 10$.
5. **C** - $x = 5$ makes the denominators zero.
6. **C** - Isolate: $\sqrt{x - 1} = 3$, so $x - 1 = 9$ and $x = 10$.
7. **A** - The last step is checking that no solution makes a denominator equal to zero.
8. **A** - Cube both sides: $x = (-2)^3 = -8$. Cube roots of negative numbers are real.
9. **D** - $1/x + 1/(2x) = 3/(2x) = 3/4$ gives $x = 2$.
10. **B** - Isolate the radical first: $\sqrt{x + 2} = x - 2$. Squaring before isolating makes the algebra harder.

Remember

- Isolate the radical before squaring.
- Squaring can create extraneous solutions; always check.
- Rational equations: multiply by the LCD to clear fractions.
- Reject answers that make a denominator 0.
- A principal square root is never negative.