

Warm Up

1. Simplify

$$\sqrt{18x^3y^4}$$

2. Solve this system of equations.

$$\begin{aligned} 2x + 3y &= 20 \\ -2x + y &= 4 \end{aligned}$$

3. Find the zeros of this function.

$$y = x^2 + 2x - 3$$

CHECK IN

Name one productive thing you would like to accomplish (or get done) over Thanksgiving Break.

7.5 Solving Radical Equations

Objective: We can solve radical equations.

Multiplying Radicals

What is the simplified form of each expression?

A. $\sqrt{10}(\sqrt{6} + 3)$

B. $(\sqrt{6} - 2\sqrt{3})(\sqrt{6} + \sqrt{3})$

Conjugates are the sum and difference of the same two terms. For example, $\sqrt{7} + \sqrt{3}$ and $\sqrt{7} - \sqrt{3}$ are conjugates.

Conjugates can be used to simplify a quotient whose denominator is a sum or difference of radicals.

Rationalizing a Denominator

What is the simplified form of

$$\frac{10}{\sqrt{7}-\sqrt{2}} \quad ?$$

Solving Radical Equations

A **radical equation** is an equation that has a variable in a radicand.

An **extraneous solution** is an apparent solution that does not satisfy the original equation.

Steps

what is the solution of

$$\sqrt{x} + 7 = 16 \quad ?$$

1. Get the radical by itself on one side of the equation.

2. Square both sides.

3. Simplify

***The expression under the radical must be nonnegative.

What is the solution of

$$\sqrt{x} - 5 = -2 \quad ?$$

Steps

1. Get the radical by itself on one side of the equation.

2. Square both sides.

3. Simplify

***The expression under the radical must be nonnegative.

What is the solution of

$$\sqrt{5t - 11} = \sqrt{t + 5} ?$$

Steps

1. Get the radical by itself on one side of the equation.

2. Square both sides.

3. Simplify

*****The expression under the radical must be nonnegative.**

What is the solution of

$$\sqrt{7x - 4} = \sqrt{5x + 10} \quad ?$$

Steps

What is the solution of

$$n = \sqrt{n + 12} \quad ?$$

1. Get the radical by itself on one side of the equation.

2. Square both sides.

3. Simplify

4. ALWAYS SUBSTITUTE EACH SOLUTION INTO THE ORIGINAL EQUATION TO CHECK FOR EXTRANEIOUS SOLUTIONS.

Steps

What is the solution of

$$\sqrt{3y + 8} = 2 \quad ?$$

1. Get the radical by itself on one side of the equation.

2. Square both sides.

3. Simplify

4. ALWAYS SUBSTITUTE EACH SOLUTION INTO THE ORIGINAL EQUATION TO CHECK FOR EXTRANEIOUS SOLUTIONS.

Write in complete sentences.

Your first sentence will be:

1) A conjugate is...



Review: Unit 3

1. Write everything you know about solving the problems on your paper. All of the problems fall under at least one of these topics.

-Law of Sines

-Law of Cosines

-Trigonometric Ratios

-Angle of Elevation and Depression

-Special Right Triangles (30-60-90 & 45-45-90)



Exit Ticket

Simplify.

1. $4\sqrt{7} + \sqrt{125} - \sqrt{80}$

2. $\sqrt{3}(3\sqrt{2} + \sqrt{3})$

Solve.

3. $\sqrt{x} - 2 = 0$

4. $\sqrt{3x - 2} + 3 = 7$

5. To the nearest tenth, how tall is the brick wall?



