

1) Get the radical by itself
2) Square both sides
3) Solve for x
4) Check your answers!

Radicals & Imaginaries

conjugates

$$\sqrt[n]{x^a} = x^{\frac{a}{n}}$$

$$\sqrt{-1} = i$$

$$i^2 = -1$$

$$a + bi$$

1 Simplify the expression $(2 - 3i) - (4 + 2i)$

A. $6 - i$ B. $-2 - 5i$ C. $14 - 8i$ D. $-14 + 8i$

No Calculator Problem!!!

Simplify the expression $(2 - 3i)(4 + 2i)$.

M. 14 P. $6i$ R. $2 - 8i$ S. $14 - 8i$

2 Which describes the first and second steps in solving the equation $\sqrt{x-5} = 10$?

A Square each side, and then add 5 to each side.
B Square each side, and then subtract 5 from each side.
C Add 5 to each side, and then square each side.
D Subtract 5 from each side, and then square each side.

So x equals _____

3 Lukas plugged the coefficients from the quadratic equation $3x^2 - 2x + 4 = 0$ into the quadratic formula. It looked like this:

$$x = \frac{2 \pm \sqrt{(-2)^2 - 4(3)(4)}}{2(3)}$$

However he wasn't sure how to simplify it. Simplify the quadratic formula and find the two answers Lukas needs.

4

In 1980, James planted a tree that was 1 foot tall. In 1996, that same tree was 71 feet tall. James finds that the height of the tree can be modeled by the radical function $H(t) = \sqrt{k} + 1$, where $H(t)$ is the height of the tree in feet, t is the number of years since 1980, and k is a specific constant.

What is the value of k ?

5

Simplify.

$$\sqrt{99x^4y^3}$$

Simplify.

$$\sqrt[3]{32x^7}$$

6

Which of the following are equivalent to $x^{\frac{4}{5}}$?

- A $\sqrt[5]{x^4}$
- B $\sqrt[4]{x^5}$
- C $(\sqrt[5]{x})^4$
- D $\frac{\sqrt[4]{x}}{5}$
- E $\sqrt{x^5}$

7

Mariah was working a trigonometry problem and found the answer $\frac{3\sqrt{5}}{2\sqrt{7}}$. Her teacher said she had done good work, but the answer couldn't be left in that form because the denominator wasn't rationalized..

What should Mariah's answer be?