

Hi Class!!

Today we're going to solve Radical Equations! Does that give you a warm fuzzy feeling?

1. Grab a clicker and handout
2. Work the below problem

Dr. T.

2, + 3

If the five-digit number $5\underline{DDDD}$ is divisible by $\underline{6}$, then find the digit D

$\frac{4}{5} \times 5$
 $\frac{2, 4, 6, 8, 0}{\underline{\hspace{2cm}}}$

Nov 15-2:12 PM

A.A.22b I can solve radical equations

Exercise #1: Solve each of the following square root equations, which are arranged from less to more complex. Check each equation by using the STORE feature on your calculator.

(c) $(\sqrt{2x-1})^2 = 4$

$$2x-1 = 86$$

$$2x = 17$$

$$x = \frac{17}{2} \checkmark$$

(f) $5\sqrt{3x-2} - 4 = 36$

$$\sqrt{3x-2} = 8$$

$$3x-2 = 64$$

$$x = 22 \checkmark$$



Nov 15-3:25 PM

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Ex: $3x - 5\sqrt{x} = 2$

$$(3x - 2)^2 = (5\sqrt{x})^2$$

$$9x^2 - 12x + 4 = 25x$$

$$9x^2 - 37x + 4 = 0$$

$$(x - 4)(9x - 1)$$

$$x = \frac{1}{9}$$

$$x = 4$$

Nov 15-3:25 PM

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Ex. $(\sqrt{2x+5})^2 = (2\sqrt{2x+1})^2$

$$2x+5 = 8x + 4\sqrt{2x} + 1$$

$$(-6x+4)^2 = (4\sqrt{2x})^2$$

$$36x^2 - 48x + 16 = 32x$$

$$36x^2 - 80x + 16 = 0$$

$$9x^2 - 20x + 4 = 0$$

$$(9x-2)(x-2)$$

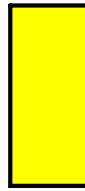
$$x = \frac{2}{9}, 2$$

Nov 15-3:25 PM

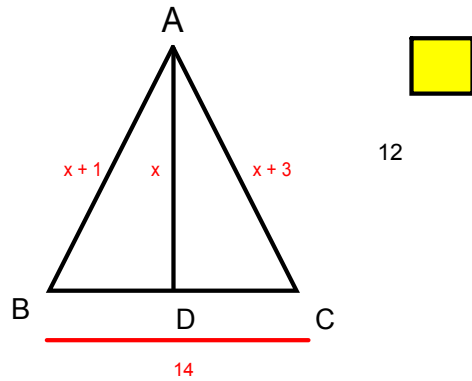
**A.A.22b I can solve radical equations
PRACTICE**

1. $\sqrt{x-7} + \sqrt{x} = 7$ 16

2. $\sqrt{n+6} - \sqrt{n} = \sqrt{6}$ 0



3. Use the dimensions given in the figure to find the length of the altitude AD



Nov 15-3:25 PM

$\sqrt{x-7} + \sqrt{x} = 7$
 $(\sqrt{x-7})^2 + (\sqrt{x})^2 + 2\sqrt{x-7}\sqrt{x} = 49$
 $x-7 + x + 2\sqrt{x-7}\sqrt{x} = 49$
 $2x - 7 + 2\sqrt{x-7}\sqrt{x} = 49$
 $2\sqrt{x-7}\sqrt{x} = 56$
 $\sqrt{x-7}\sqrt{x} = 28$
 $(\sqrt{x-7})^2 (\sqrt{x})^2 = 28^2$
 $(x-7)x = 784$
 $x^2 - 7x - 784 = 0$
 $x = \frac{7 \pm \sqrt{49 + 3136}}{2}$
 $x = \frac{7 \pm \sqrt{3185}}{2}$
 $x = 100$

Nov 16-8:57 AM

**A.A.22b I can solve radical equations
TICKET TO LEAVE**

Which of the following values solves the equation $\frac{\sqrt{4x+19}}{2} = 2$?

(1) $-\frac{9}{2}$

(3) $\frac{4}{3}$

(2) $-\frac{3}{4}$

(4) $\frac{1}{2}$

Nov 15-3:25 PM