

Starter
 Calendar Math
 3.3 Questions
 3.4 Solving Radical Equations

Oct 13-6:58 AM

#3 $\frac{1}{6b-4} = \frac{2}{b+3} + \frac{b+1}{6b^2+4b-12}$

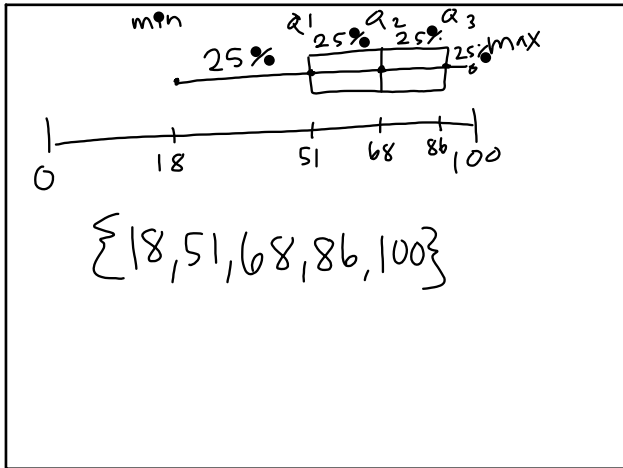
$2(3b^2+7b-6)$
 $9 \times \frac{18}{3} \times \frac{2}{3} (3b+1)(3b-2)$
 $7 \times \frac{1}{2} \times \frac{1}{2} (b+3)(3b-2)$

$\frac{1}{2(3b-2)} = \frac{2}{b+3} + \frac{b+1}{2(b+3)(3b-2)}$

$b+3 = 2 \cdot 2(3b-2) + b+1$
 $b+3 = 4(3b-2) + b+1$
 $b+3 = 12b-8 + b+1$
 $b+3 = 13b-7$
 $-b+7 = -b+7$

$\frac{10}{12} = \frac{12b}{12} \quad b \neq -3, \frac{2}{3}$
 $\frac{5}{6} = b$

Oct 13-8:08 AM



Oct 13-8:17 AM

- Steps to Solving a Radical Equation:
1. Isolate the radical
 2. Match the index to the power to cancel out the radical
 3. Solve for x
 4. Check your solution
 1. Plug into calculator
 2. Use stor \rightarrow x
 3. Put equation in
 4. Check the answer
- HW# all odds, + 18

Oct 13-7:02 AM

ex1)

$\sqrt[3]{6x+9} + 8 = 5$
 $\sqrt[3]{6x+9} = -3$

$(\sqrt[3]{6x+9})^3 = (-3)^3$

$6x+9 = -27$
 $6x = -36$
 $\frac{6x}{6} = \frac{-36}{6}$
 $x = -6 \quad x \in \mathbb{R}$

Oct 13-8:26 AM

ex2)

$(\sqrt{-1-2m})^2 = (m)^2$
 $-1-2m = m^2$
 $-1-2m = m^2 \quad m \geq -1/2$
 $+1+2m = m^2$
 $0 = m^2 + 2m + 1$
 $(m+1)(m+1)$
 $m+1 = 0$
 $m = -1 \quad m \geq -1/2$

$\sqrt{\quad}$
 $\sqrt{\quad}$
 No solution

Oct 13-8:29 AM

$$(\sqrt{10-p})^2 = (-3 + \sqrt{5p-5})^2$$

$$10-p = \begin{matrix} X = \sqrt{5p-5} \\ -3 \quad X \\ \frac{9}{3x} \quad \frac{-3x}{x^2} \end{matrix}$$

$$10-p = 9 - 6x + x^2$$

$$10-p = 9 - 6(\sqrt{5p-5}) + (5p-5)$$

$$10-9+5p-p-5p = -6\sqrt{5p-5}$$

$$\frac{6-6p}{-6} = -\frac{6\sqrt{5p-5}}{-6} \quad \begin{matrix} -1 & p \\ 1 & -p \\ -p & p^2 \end{matrix}$$

$$(-1+p) = (\sqrt{5p-5})^2$$

$$(-1+p)^2 = 5p-5$$

$$p^2-2p+1 = 5p-5$$

$$p^2-7p+6 = 0 \quad \begin{matrix} 6 & & \\ -1 & & -6 \\ -7 & & \end{matrix}$$

$$(x-1)(x-6) = 0$$

$$x=1, 6$$

$$x > 10 \quad \checkmark > 1$$

Oct 13-8:38 AM

$$(3a)^{2/3}$$

$$(\sqrt[3]{3a})^2$$

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

Oct 13-8:24 AM

$$(3a)^{2/3} =$$

$$(\sqrt[3]{3a})^2$$

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

Oct 13-10:05 AM

ex1

$$\sqrt[3]{6x+9} + 8 = 5$$

$$\sqrt[3]{6x+9} = -3$$

$$6x+9 = -27$$

$$6x = -36$$

$$x = -6 \quad X \in \mathbb{R}$$

odd roots or radicals no restrictions
 $X \in \mathbb{R}$
 is all real #s

Oct 13-10:08 AM

ex2

$$(\sqrt{-1-2m})^2 = (m)^2$$

$$-1-2m = 0$$

$$-2m = 1 \Rightarrow m = -1/2$$

$$m \geq -1/2 \quad m = -1 \text{ no solution}$$

$$\sqrt{-1-2m} = m$$

$$-1-2m = m^2$$

$$m^2+2m+1 = 0$$

$$(m+1)(m+1) = 0$$

$$m+1 = 0 \Rightarrow m = -1$$

$$m = -1 \quad m \leq -1/2$$

Oct 13-10:14 AM

ex3

$$p \geq 10$$

$$\sqrt{10-p} = 3 + \sqrt{5p-5}$$

$$X = \sqrt{5p-5} \text{ substitute}$$

$$(\sqrt{10-p})^2 = (3+X)^2$$

$$10-p = 9 + 6X + X^2$$

$$10-p = 9 + 6(\sqrt{5p-5}) + (5p-5)$$

$$10-p = 9 + 6\sqrt{5p-5} + 5p-5$$

$$10-p-9-5p+5 = 6\sqrt{5p-5}$$

$$-6-6p = 6\sqrt{5p-5}$$

$$-1-p = \sqrt{5p-5}$$

$$(-1-p)^2 = 5p-5$$

$$p^2-2p+1 = 5p-5$$

$$p^2-7p+6 = 0$$

no solution

$$(-1-p)(p-1) = 0 \quad p \geq 10$$

$$p = 6$$

$p \leq 10$ restrictions
 $p \geq 10$

Oct 13-10:22 AM