

Office hours - Mon, Oct. 4

Square root property - WebWork examples

- WW, "SRP"

#1 ~ #2 - in class last Friday.

#3 : Solve for x :

$$(x-4)^2 = 17$$

① Take the square root of both sides :

Notation:
"4 ± √17"

$$\sqrt{(x-4)^2} = \pm\sqrt{17}$$

square root property!

$$(x-4) = \pm\sqrt{17}$$

② Solve for x :

$$x-4 = \sqrt{17} \Rightarrow x = 4 + \sqrt{17}$$

$$x-4 = -\sqrt{17} \Rightarrow x = 4 - \sqrt{17}$$

Review: "Zero Product Property" (ZPP) (solving quadratic eqns. by factoring) (2)

Ex: Solve for x :

①
$$1x^2 - 14x + 45 = 0$$

factor to LHS

$$(x-9) \cdot (x-5) = 0$$

shortcut - instead of full "AC-method"

(when $a=1$)

set up parentheses and see if you can fill them w/ a factorization.

} Both signs must be negative
(b/c $c = +45$
but $b = -14$)

→ By ZPP:

$$x-9=0 \sim x-5=0$$

$x=9$	$x=5$
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hw: "ZPP", # 6 (extra credit!)

3

Solve: $\frac{10x^2 + 11x + 3}{1} = 0$

quadratic eqn
in "std form"
 $ax^2 + bx + c = 0$

try to factor
LHS - AC-method!

Need 2 factors of $ac = (10)(3) = 30$
which sum to $b = 11$

30	+
1, 30	31
2, 15	17
3, 10	13
5, 6	
5, 6	11 ✓

"Split the linear term"

$$\left[\underline{10x^2} + \underline{5x} \right] + \left[\underline{6x} + \underline{3} \right] = 0$$

GCF: $5x$

GCF: 3

$$5x [2x + 1] + 3 [2x + 1] = 0$$

$$(2x + 1)(5x + 3) = 0$$

By ZPP:

$$2x + 1 = 0 \quad \left. \begin{array}{l} 2x + 1 = 0 \\ 2x = -1 \end{array} \right\} \begin{array}{l} 5x + 3 = 0 \\ 5x = -3 \end{array}$$

$$2x = -1$$

$$x = -\frac{1}{2} \quad \left. \begin{array}{l} x = -\frac{1}{2} \\ x = -\frac{3}{5} \end{array} \right\}$$