MATH LEAGUE 13TH WEEK SOLUTIONS:

FINDING THE VALUE OF THE EXPRESSION:

1-

$$A=\sqrt{5+2\sqrt{6}}-\frac{1}{\sqrt{5+2\sqrt{6}}}$$

$$A=\sqrt{\left(\sqrt{2}+\sqrt{3}\right)^2}-\frac{1}{\sqrt{\left(\sqrt{2}+\sqrt{3}\right)^2}}$$

$$A=\sqrt{2}+\sqrt{3}-\frac{1}{\sqrt{2}+\sqrt{3}}$$

$$A=\sqrt{2}+\sqrt{3}-\frac{1\left(-\left(\sqrt{2}-\sqrt{3}\right)\right)}{\left(\sqrt{2}+\sqrt{3}\right)\times\left(-\left(\sqrt{2}-\sqrt{3}\right)\right)}$$

$$A=\sqrt{2}+\sqrt{3}-\left(-\left(\sqrt{2}-\sqrt{3}\right)\right)$$

$$A=\sqrt{2}+\sqrt{3}+\left(\sqrt{2}-\sqrt{3}\right)$$

$$A=\sqrt{2}+\sqrt{3}+\sqrt{2}-\sqrt{3}$$

$$\underline{A=}\ 2\sqrt{2}$$

SOLVING THE EQUATION:

-2

$$\sqrt{x}+\sqrt{10-x}=10$$

$$\left(\sqrt{x}+\sqrt{10-x}\right)^2=10^2$$

$$x+10-x+2\sqrt{x(10-x)}=100$$

$$2\sqrt{x(10-x)} = 90$$

$$\sqrt{x(10-x)} = 45$$

$$x(10-x) = 45^2$$

$$x(10-x) = 2025$$

$$\sqrt{10-x} > 0$$

$$10-x > 0$$

$$x > 0$$

$$0 \leq x \leq 10$$

SINCE 2025 IS DIVISIBLE BY 5 X=5, BUT

25=(10-5)5

THE EQUALITY IS NOT ACHIEVED, AND THEREFORE THE EQUATION HAS NO SOLUTION

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