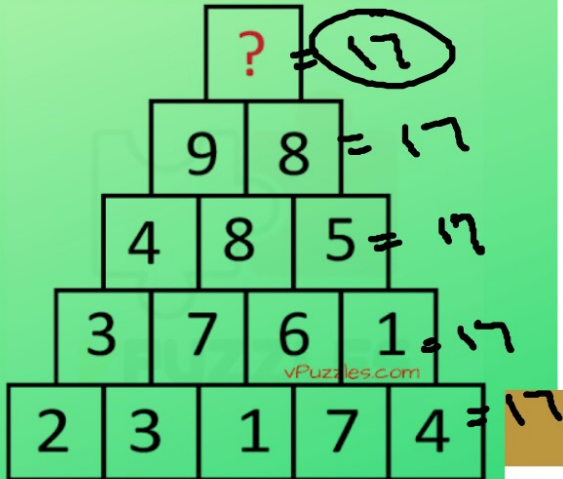
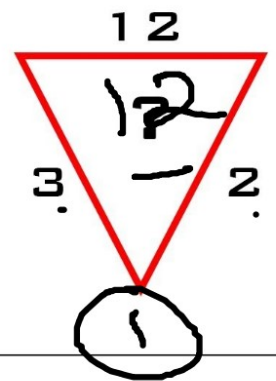
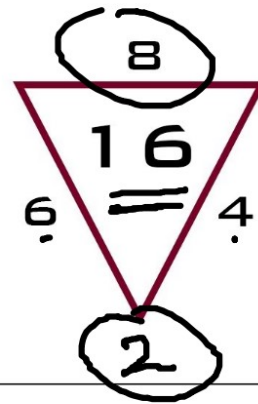
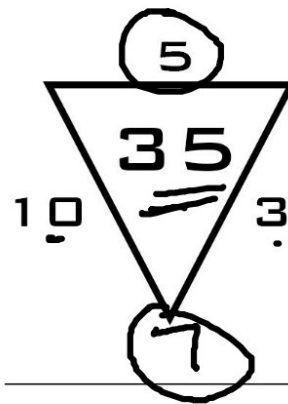


FIND THE MISSING NUMBER !



MATH PUZZLE



Solving Radical Equations

1. * Isolate "one" of the radicals
(Get by itself)
2. * Square both sides of the
equation
3. * Solve for x :
4. * Check Solution

Ex:

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

$$2x - 3 = 25$$

$$\frac{2x}{2} = \frac{28}{2}$$

$$x = 14$$

Check

* Plug it back into the original equation

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

$$\sqrt{2(14)-3} = 5$$

$$\sqrt{28-3} = 5$$

$$\sqrt{25} = 5$$

Ex:

$$\frac{\sqrt{3x+1} - 2}{+2} = 6 + 2$$

$$\sqrt{3x+1} = 8^2$$

$$3x + 1 = 64$$

$$\frac{3x}{3} = \frac{63}{3}$$

$$\boxed{x=21}$$

$$\sqrt{3x+1} - 2 = 6$$

$$\sqrt{3(21)+1} - 2 = 6$$

$$\sqrt{63+1} - 2 = 6$$

$$\sqrt{64} - 2 = 6$$

$$x=21$$

$$8 - 2 = 6$$

$$6 = 6$$

✓

✓

Ex. (*) $\sqrt{2x+3} + 5 = -8$ *

$\sqrt{2x+3} = (-13)^2$

Check

$2x + 3 = 169$
 $\sqrt{2(83)+3} + 5 = -8$ -3 -3

$\sqrt{166+3} + 5 = -8$

$\sqrt{169} + 5 = -8$

$13 + 5 = -8$
 $18 = -8$

$\frac{2x}{2}$

$= \frac{166}{2}$

$x = 83$

* Extraneous Solution :
is a solution found
algebraically, but it does
NOT work when checked.

* Do not show up
on DESMOS

Ex:

$$\sqrt{4x - 6} = \sqrt{2x + 14}$$

$$\begin{array}{r} 4x - 6 \\ - 2x \quad \downarrow \\ \hline \end{array} = \begin{array}{r} \cancel{2x} + 14 \\ - \cancel{2x} \quad \downarrow \\ \hline \end{array}$$

$$\begin{array}{r} 2x - \cancel{6} \\ \downarrow + \cancel{6} \\ \hline \end{array} = \begin{array}{r} 14 \\ + 6 \\ \hline \end{array}$$

$$\frac{2x}{2} = \frac{20}{2}$$

$$x = 10$$

Solution