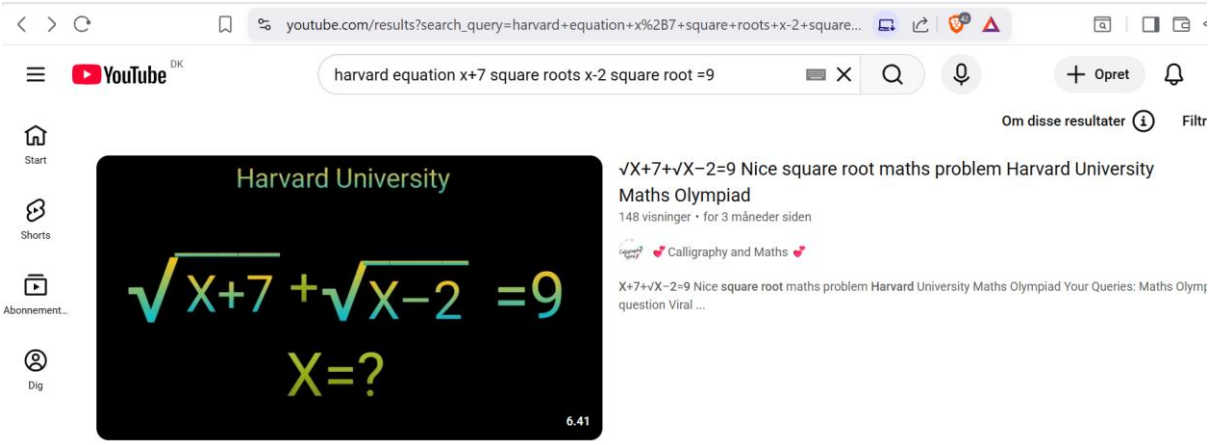
Pi

$Equation: \sqrt[2]{x+7} + \sqrt[2]{x-2} = 9$



$In\ general.$

$Choose\ n\ random, calculate\ 2n+1,$

$Choose\ t\ og\ v\ natural\ numbers\ with\ t+v = 2n+1$

$Equation\ (n+1)^2 = x+t \Leftrightarrow x = (n+1)^2 - t$

$Equation: \sqrt[2]{x+t} + \sqrt[2]{x-v} = 2n+1$

$Choose\ n\ random, calculate\ 2n+1,$

$Choose\ t\ a\ natural\ number\ with\ t \leq = 2n+1$

$Consider\ the\ Equation\ (n+1)^2 = x+t \Leftrightarrow x = (n+1)^2 - t$

$The\ Equation\ with\ square\ roots:$

$$\sqrt[2]{x+t} + \sqrt[2]{x-v} = 2n+1 \Leftrightarrow$$

$$\sqrt[2]{x+t} + \sqrt[2]{x-(2n+1-t)} = 2n+1 \Leftrightarrow$$

$$\sqrt[2]{x+t} + \sqrt[2]{x-2n-1+t} = 2n+1 \Leftrightarrow$$

Final Result.

Let n be a random natural number and t a random integer. ~~*with* $t \leq= 2n+1$~~

Consider the Equation

(##): $\sqrt[2]{x+t} + \sqrt[2]{x-2n-1+t} = 2n+1$

Has the solution $x = (n+1)^2 - t$

Examples.

1. $n = 4, t = 7.$ (##) *becomes*

$\sqrt[2]{x+7} + \sqrt[2]{x-2\cdot 4-1+7} = 2\cdot 4+1 \Leftrightarrow \sqrt[2]{x+7} + \sqrt[2]{x-2} = 9, x = (4+1)^2 - 7 = 18$

2. $n = 7, t = 13.$ (##) *becomes*

$\sqrt[2]{x+13} + \sqrt[2]{x-2\cdot 7-1+13} = 2\cdot 7+1 \Leftrightarrow \sqrt[2]{x+13} + \sqrt[2]{x-2} = 15, x = (1+7)^2 - 13 = 51$

3. $n = 7, t = -5.$ (##) *becomes*

$\sqrt[2]{x-5} + \sqrt[2]{x-15-5} = 15 \Leftrightarrow \sqrt[2]{x-5} + \sqrt[2]{x-20} = 15, x = (1+7)^2 - (-5) = 69$

3. $n = 19, t = 37.$ (##) *becomes*

$\sqrt[2]{x+37} + \sqrt[2]{x-39+5} = 39 \Leftrightarrow \sqrt[2]{x+37} + \sqrt[2]{x-34} = 39, x = (1+19)^2 - 37 = 163$

Med løsningen x=