Ncert Solutions Chapter 4 Quadratic Equations Exercise 4.4 Question 4

Question 4. Is the following situation possible? If so, determine their present ages. The sum of the ages of two friends is 20 years. Four years ago, the product of their ages in years was 48.

Solution:

Let age of first friend $= x$ years

Let age of second friend $= (20-x)$ years

Four years ago, age of first friend $= (x-4)$ years

Four years ago, age of second friend $= (20-x)-4 = (16-x)$ years

According to given condition, we have

$(x-4)(16-x)=48$

$\Rightarrow 16x-x^2-64+4x=48$

$\Rightarrow 20x-x^2-112=0$

$\Rightarrow x^2-20x+112=0$

Comparing equation, $x^2-20x+112=0$ with general quadratic equation $ax^2+bx+c=0,$ we get $a=1,\ b=-20\ and\ c=112.$

Discriminant $=b^2-4ac=(-20)^2-4(1)(112)=400-448=-48<0$

Discriminant is less than zero which means we have no real roots for this equation. Therefore, the give situation is not possible.

I am also present on facebook.
Please like and share.

https://www.facebook.com/pages/Math-on-Rough-Sheets/300575096712996