Ncert Solutions Chapter 4 Quadratic Equations Exercise 4.2 Question 4

Question 4. Find two consecutive positive integers, sum of whose squares is 365.

Solution

Let first number be x

Let second number be $(x+1)$

According to given condition, we have

$x^2+(x+1)^2=365$ $\quad\{(a+b)^2=a^2+b^2+2ab\}$

$\Rightarrow x^2+x^2+1+2x=365$

$\Rightarrow 2x^2+2x-364=0$

Dividing equation by 2, we get

$x^2+x-182=0$

$\Rightarrow x^2+14x-13x-182=0$

$\Rightarrow x(x+14)-13(x+14)=0$

$\Rightarrow (x+14)(x-13)=0$

$\Rightarrow x=13,-14$

Therefore first number = 13 {We discard -14 because it is given that number is positive}.

Second number $=x+1=13+1=14$

Therefore two consecutive positive integers are 13 and 14 whose sum of squares is equal to 365.

I am also present on facebook.

Please like and share.

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