

A general condition for equal sums of squares?

Source: <http://sci.tech-archive.net/Archive/sci.math/2006-08/msg00841.html>

- *From:* "Gerry" <GerryMrt@xxxxxxxxxx>
 - *Date:* 13 Aug 2006 06:51:52 -0700
-

Hi Everybody,

trying to find a general identity for equal sums of squares as in

$$\sum_{i=1}^n x_i^2 = \sum_{i=1}^n y_i^2$$

i found that for a value x there always is a solution relating x_1, y_1 and S_n as follows :

$$x_1 = (1 + (n \bmod 2))x - (y_1 \bmod 2)(n \bmod 2)$$

$$S_n = \sum_{i=2}^n x_i = \left(\frac{n-2}{2 - (n \bmod 2)} \right) x + \frac{y_1}{2 - (n-2)(n \bmod 2)}$$

Is this a trivial relationship, and are there any references around this subject?

Thanks

Gerry

.