V

$$AD \cdot DB + \overline{CD}^2 = \overline{CB}^2$$

E

A C D B But $CB = \frac{1}{2} AB = \frac{1}{2}$ of $AD + DB$

Cut off $AE = DB$

Then EC will = CD ∴ $CD = \frac{1}{2} ED = \frac{1}{2}$ AD − AE

$= \frac{1}{2}(AD - DB)$

VI

$$AC \cdot CB + \overline{BD}^2 = \overline{DC}^2$$

E A D B C But $BD = \frac{1}{2} AB = \frac{1}{2}(AC - BC)$

Produce CA to E making $AE = BC$

Then $EA = BC$ & $AD = BD$

∴ $ED = DC$ ∴ $ED = \frac{1}{2} EC = \frac{1}{2}(AC + EA)$

$= \frac{1}{2}(BC + AC)$

Let AB be divided into

A C B any 2 parts in pt C

Then $\overline{AB}^2 + \overline{BC}^2 = \overline{AC}^2 + 2 AB \cdot BC$ II 7

or ∴ $\overline{AC}^2 = \overline{AB}^2 + \overline{BC}^2 - 2 AB \cdot BC$ Ax 3

∴ $(AB - BC)^2 = \overline{AB}^2 + \overline{BC}^2 - 2 AB \cdot BC$

But $(AB + BC)^2 = \overline{AB}^2 + \overline{BC}^2 + 2 AB \cdot BC$ II 4

∴ $(AB + BC)^2 + (AB - BC)^2 = 2(\overline{AB}^2 + \overline{BC}^2)$ Ax 2

∴ The sq on the sum of 2 st lines together with the sq on their diff is equal to twice the sum of the sqs on 2 st lines & this enunciation includes both II 9 & II 10 as may be shown as follows

A C D B Let st line AB be divided equally in C & unequally in D

Then $\overline{AD}^2 + \overline{BD}^2 = 2(\overline{AC}^2 + \overline{CD}^2)$ II 9

∴ $(AC + CD)^2 + (BC - CD)^2 = 2(\overline{AC}^2 + \overline{CD}^2)$

∴ $(AC + CD)^2 + (AC - CD)^2 = 2(\overline{AC}^2 + \overline{CD}^2)$

∴ The sq on the sum of 2 st lines together with the sq on their diff is equal &c

M.

EL

Of

Pres

Auth

Reco

Reco

Aut