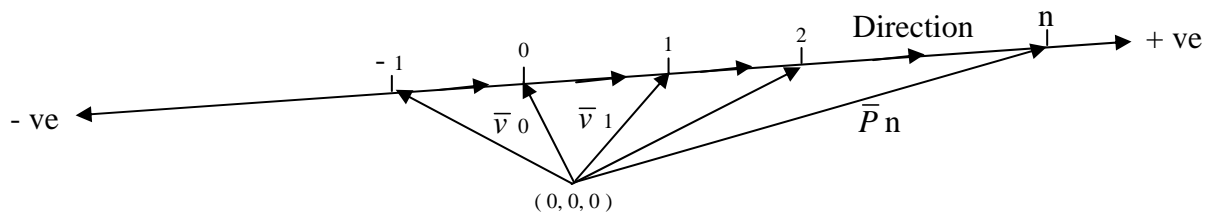


Some Notes on the Geometry of Vector Cryptography

2.

Equation of a Line.



It can be seen that any number 'n' is that many spaces along from 0 (zero) on the line.

In vector work one space is equal to :-

To go from 0 to 1 I must go down \bar{v}_0 and because I am going against the arrow it becomes $-\bar{v}_0$. Arriving at (0, 0, 0) I go up \bar{v}_1 and it is positive (going with the arrow) so the net effect of these two is $-\bar{v}_0 + \bar{v}_1$. In more normal layout this is,

$$\bar{v}_1 - \bar{v}_0.$$

Consolidating then :

To read n, starting at the universal origin (0, 0, 0) I go up \bar{v}_0 and count along n spaces which is $n(\bar{v}_1 - \bar{v}_0)$ so,

The equation of this line is:

$$\bar{V}_n = \bar{v}_0 + n(\bar{v}_1 - \bar{v}_0) \text{ - true for all 'n'.$$

In cryptography we are only interested in integers the reason being that different methods of rounding can lead to errors.