

## Answer on Question #67859 – Math – Analytic Geometry

### Question

The following forces act on a particle P:

$F_1=2i+3j-5k$ ,  $F_2=-5i+j+3k$ ,  $F_3=i-2j+4k$ ,  $F_4=4i-3j-2k$ .

Find the magnitude of the resultant:

- a)  $2i-j$
- b)  $2i-j+k^2$
- c)  $2i-j-2k$
- d)  $i-j-k$

### Solution

$$\begin{aligned} F_1 + F_2 + F_3 + F_4 &= (2i + 3j - 5k) + (-5i + j + 3k) + (i - 2j + 4k) + \\ (4i - 3j - 2k) &= (2 - 5 + 1 + 4)i + (3 + 1 - 2 - 3)j + \\ +(-5 + 3 + 4 - 2)k &= 2i - j. \end{aligned}$$

**Answer:** a)  $2i - j$