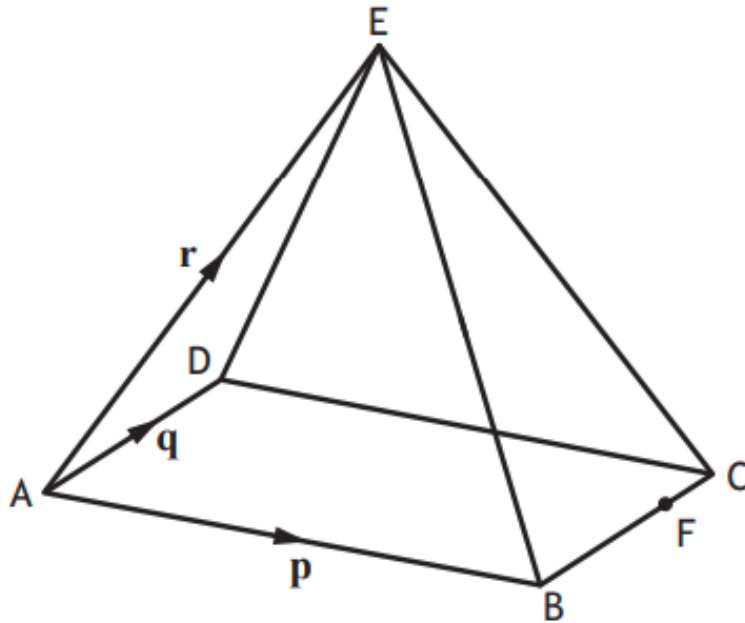


### 2019 P2 Q3

3. E,ABCD is a rectangular based pyramid.

$$\vec{AB} = \mathbf{p}, \vec{AD} = \mathbf{q} \text{ and } \vec{AE} = \mathbf{r}.$$



(a) Express  $\vec{BE}$  in terms of  $\mathbf{p}$  and  $\mathbf{r}$ .

Point F divides BC in the ratio 3:1.

(b) Express vector  $\vec{EF}$  in terms of  $\mathbf{p}$ ,  $\mathbf{q}$  and  $\mathbf{r}$ .

### Answers

(a)  $\vec{BE} = -\mathbf{p} + \mathbf{r}$

(b)  $\vec{EF} = \mathbf{p} - \mathbf{r} + \frac{3}{4}\mathbf{q}$  or equivalent