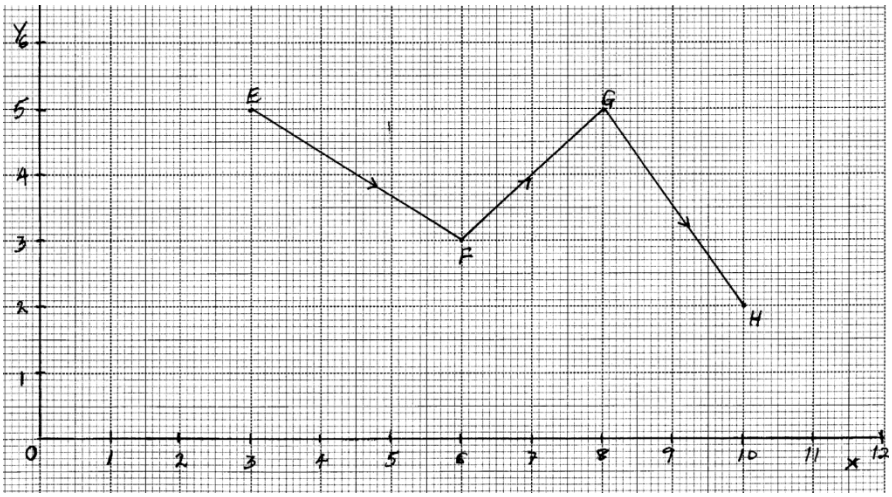


Find the column vectors;

(a) $\underset{\sim}{EH}$ (1mk)

(b) $|\underset{\sim}{EH}|$ (2mks)

8. $\underset{\sim}{OA} = 2\underset{\sim}{i} - 4\underset{\sim}{k}$ and $\underset{\sim}{OB} = -2\underset{\sim}{i} + \underset{\sim}{j} - \underset{\sim}{k}$. Find $|\underset{\sim}{AB}|$ (2mks)

9. Show that P (4, 0 -4), Q (8, 2, -1) and R (24, 10, 11) are collinear (3 mks)

10. Given that $\underset{\sim}{p} = 2i - j + k$ and $q = i + j + 2k$, determine

a. $|p + q|$ (1 mk)

(b) $|\ \curvearrowleft p - 2q\ |$ (2 mks)

11. Express in surds form and rationalize the denominator.

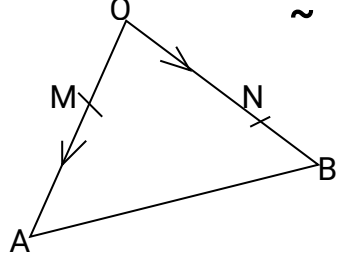
$$\frac{1}{\text{Sin } 60^o \text{ Sin } 45^o - \text{ Sin } 45^o}$$

12. If $\overrightarrow{OA} = 12i + 8j$ and $\overrightarrow{OB} = 16i + 4j$. Find the coordinates of the point which divides **AB** internally in the ratio1:3

13. Find scalars **m** and **n** such that

$$\mathbf{m}\begin{pmatrix}4\\3\end{pmatrix} + \mathbf{n}\begin{pmatrix}-3\\2\end{pmatrix} = \begin{pmatrix}5\\8\end{pmatrix}$$

14. In a triangle OAB, M and N are points on OA and OB respectively, such that OM: MA = 2:3 and ON: NB = 2:1. **AN** and **BM** intersect at X. Given that $\underset{\sim}{OA} = a$ and $\underset{\sim}{OB} = b$



(a) Express in terms of a and b

(i) BM

(ii) AN

(b) By taking **BX** = t and **AX** = **h AN**, where **t** and **h** are scalars, express **OX** in two