



SPTA

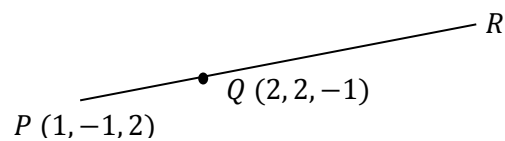
Higher Homework

Vectors (B)



1. Show that points A (1, -3, 4), B (-2, 1, 1) and C (-11, 13, -8) are collinear. (3)

2. The point Q divides \overrightarrow{PR} in the ratio 1:3. Find the coordinates of R

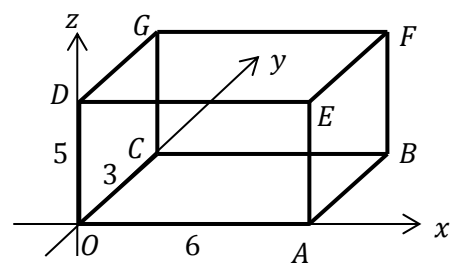


3. Vector $a\mathbf{i} + b\mathbf{j} - \mathbf{k}$ is perpendicular to both $3\mathbf{i} + \mathbf{j} - 11\mathbf{k}$ and $-2\mathbf{i} - \mathbf{j} - 9\mathbf{k}$. Find the values of a and b . (3)

4. OA is 6 units long, OC is 3 units and OD is 5 Units

(a) Write down the coordinates of E, B and G

(b) Hence calculate the size of angle \widehat{BEG}



5. In the trapezium PQRS the lengths of the sides PQ and PS are 5 and 4 units respectively. The vectors \underline{a} , \underline{b} and \underline{c} are as shown on the diagram.

Evaluate (a) $\underline{a} \cdot (\underline{b} + \underline{c})$

(b) $\underline{c} \cdot (\underline{a} - \underline{b})$

