

1. Find a vector perpendicular to the vector formed by the line which goes through the points  $(1, 3)$  and  $(-2, 7)$ .

2. Do the following four points form a rectangle? Explain your answer.

$$P(1, 1, 1), Q(3, 2, 2), R(2, 3, 3), S(2, 2, 3)$$

3. Find the vector perpendicular to the vectors  $\overrightarrow{PQ}$  and  $\overrightarrow{PR}$  if

$$P(-1, 1, -1), Q(2, 1, 0) \text{ and } R(1, 1, 1)$$