



(2)

(2)

(4)

- **1.** The vectors $x\mathbf{i} + 5\mathbf{j} + 7\mathbf{k}$ and $-3\mathbf{i} + 2\mathbf{j} \mathbf{k}$ are perpendicular. What is the value of x?
- 2. In the diagram RSTU, VWXY represents a cuboid.

 \overrightarrow{SR} represents vector \mathbf{f} , \overrightarrow{ST} represents vector \mathbf{g} and \overrightarrow{SW} represents vector \mathbf{h}

Express \overrightarrow{VT} in terms of f, g and h.

 An equilateral triangle of side 3 units is shown. The vectors p and q are as represented in the diagram. What is the value of p.q?





4. Relative to a suitable coordinate system A and B are the points (-2, 1, -1) and (1, 3, 2) respectively.
A, B and C are collinear points and C is positioned such that BC = 2AB.
Find the coordinates of C.



- 5. OABCDEFG is a cube with side 2 units, as shown in the diagram.
 B has coordinates (2, 2, 0).
 P is the centre of face OCGD and Q is the centre of face CBFG.
 - (a) Write down the coordinates of G
 - (b) Find **p** and **q**, the position vectors of points P and Q
 - (c) Find the size of angle POQ.

