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National 5 Mathematics

Exam Questions by Topic

Vectors

Step-by-step worked solutions to these questions in the N5 Maths Study Pack

2015 N5 Past Paper P2, Q4

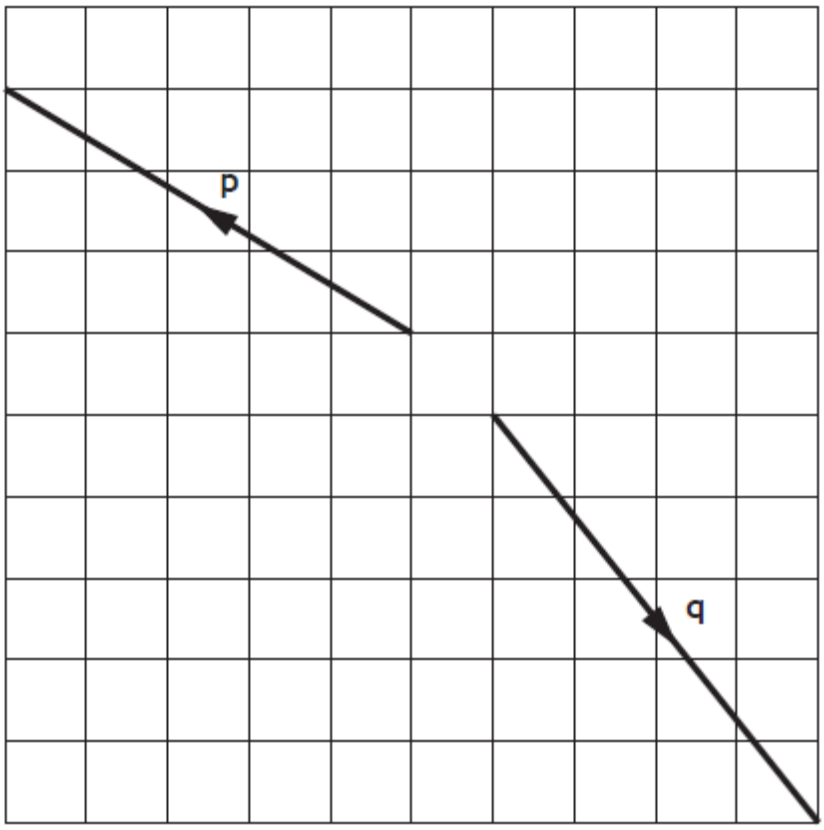
1. Find $|u|$, the magnitude of $u = \begin{bmatrix} 6 \\ -13 \\ 18 \end{bmatrix}$ (2 marks)

2015 N5 Past Paper P2, Q5

2. The vectors p and q are shown in the diagram below.

Find the resultant vector p + q.

Express your answer in component form.



(2 marks)

2014 N5 Past Paper P1, Q4

3. Find the resultant vector $2u - v$ when $u = \begin{bmatrix} -2 \\ 3 \\ 5 \end{bmatrix}$ and $v = \begin{bmatrix} 0 \\ -4 \\ 7 \end{bmatrix}$.

Express your answer in component form. (2 marks)

2013 N5 Specimen P1, Q3

4. Two forces acting on a rocket are represented by vectors u and v.

$$u = \begin{bmatrix} 2 \\ -5 \\ -3 \end{bmatrix} \text{ and } v = \begin{bmatrix} 7 \\ 4 \\ -1 \end{bmatrix}$$

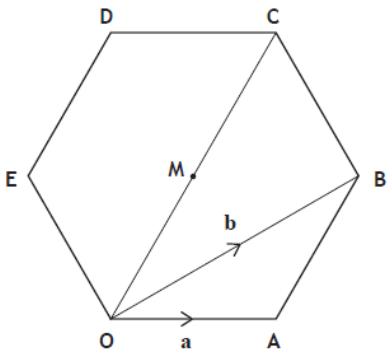
Calculate $|u + v|$, the magnitude of the resultant force.

Express your answer as a surd in its simplest form. (3 marks)

2013 N5 Specimen P2, Q3

5. In the diagram OABCDE is a regular hexagon with centre M.

Vectors a and b are represented by $\overrightarrow{AB}$ and $\overrightarrow{OC}$ respectively.



(a) Express $\overrightarrow{AB}$ in terms of a and b (1 mark)

(b) Express $\overrightarrow{OC}$ in terms of a and b (1 mark)

N5 Practice Paper A, P1, Q5

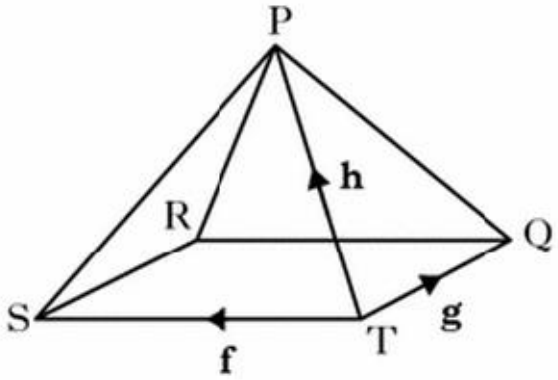
6. Two vectors are defined as $u = \begin{pmatrix} 2 \\ -5 \end{pmatrix}$ and $v = \begin{pmatrix} -4 \\ 3 \end{pmatrix}$.

(a) Find the resultant vector $u + 3v$. (1 mark)

(b) Find $|u + 3v|$ (2 marks)

N5 Practice Paper D, P1, Q6

7. The diagram shows a square based pyramid PQRST.



Express $\overrightarrow{RP}$ interms of $\boldsymbol{f}, \boldsymbol{g}$ and $\boldsymbol{h}$. (3 marks)