Paper Reference

1 3 8 0 / 3 H

Paper Reference(s)

1380/3H

Edexcel GCSE

Mathematics (Linear) – 1380

Paper 3 (Non-Calculator)

Vectors

Past Paper Questions

Arranged by Topic

Materials required for examination
Ruler graduated in centimetres and
millimetres, protractor, compasses,
pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers
Nil

Instructions to Candidates

In the boxes above, write your centre number, candidate number, your surname, initials and signature.
Check that you have the correct question paper.
Answer ALL the questions. Write your answers in the spaces provided in this question paper.
You must NOT write on the formulae page.
Anything you write on the formulae page will gain NO credit.
If you need more space to complete your answer to any question, use additional answer sheets.

Information for Candidates

The marks for individual questions and the parts of questions are shown in round brackets: e.g. **(2)**.
There are 26 questions in this question paper. The total mark for this paper is 100.
There are 24 pages in this question paper. Any blank pages are indicated.
Calculators must not be used.

Advice to Candidates

Show all stages in any calculations.
Work steadily through the paper. Do not spend too long on one question.
If you cannot answer a question, leave it and attempt the next one.
Return at the end to those you have left out.

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Compiled by Peter Bland

Turn over

1.

Diagram **NOT** accurately drawn

OPT is a triangle.
M is the midpoint of *OP*.

$\overrightarrow{OT} = \mathbf{a}$

$\overrightarrow{TP} = \mathbf{b}$

(a) Express $\overrightarrow{OM}$ in terms of **a** and **b**.

$\overrightarrow{OM} =$ ....

(2)

(b) Express $\overrightarrow{TM}$ in terms of **a** and **b**.
Give your answer in its simplest form.

$\overrightarrow{TM} =$ ....
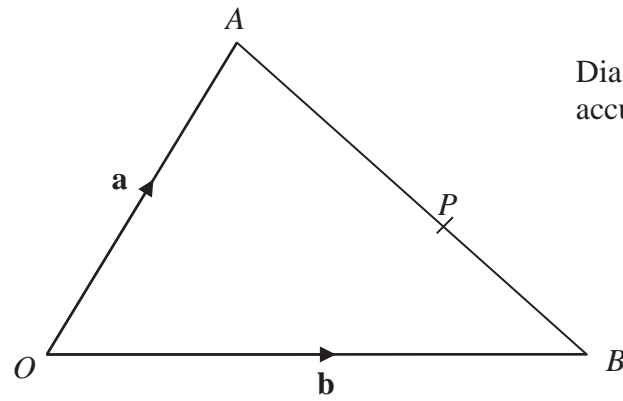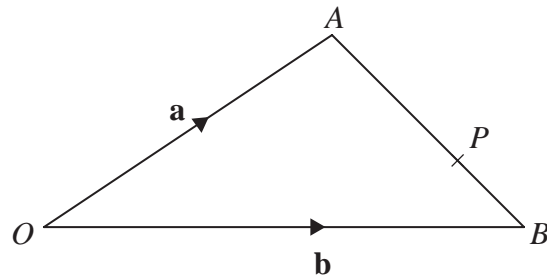
(2)

Q1

(Total 4 marks)

2.

Diagram **NOT** accurately drawn

OAB is a triangle.

$\overrightarrow{OA} = \mathbf{a}$

$\overrightarrow{OB} = \mathbf{b}$

(a) Find the vector $\overrightarrow{AB}$ in terms of **a** and **b**.

$\overrightarrow{AB}$ = ...

(1)

P is the point on *AB* such that *AP* : *PB* = 3 : 2

(b) Show that $\overrightarrow{OP} = \dfrac{1}{5}(2\mathbf{a} + 3\mathbf{b})$

(3) **Q2**

(Total 4 marks)

3.

Diagram **NOT** accurately drawn

OAB is a triangle.

$\overrightarrow{OA}$ = **a**, $\overrightarrow{OB}$ = **b**

(a) Find the vector $\overrightarrow{AB}$ in terms of **a** and **b**.

$\overrightarrow{AB}$ = ...
(1)

P is the point on *AB* so that *AP* : *PB* = 2 : 1

(b) Find the vector $\overrightarrow{OP}$ in terms of **a** and **b**.
      Give your answer in its simplest form.

$\overrightarrow{OP}$ = ...
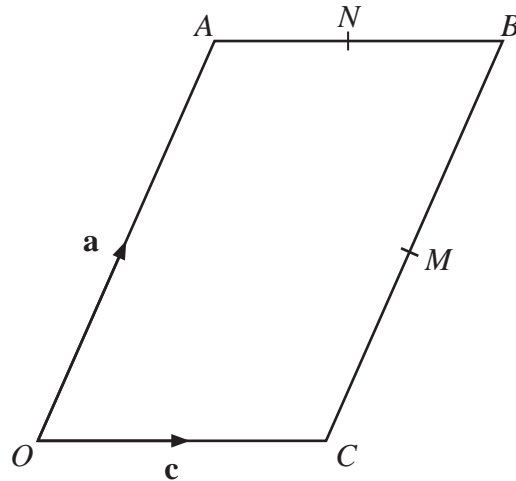**(3)**   **Q3**

(Total 4 marks)

4.

Diagram **NOT**
accurately drawn

OABC is a parallelogram.
M is the midpoint of *CB*.
N is the midpoint of *AB*.

$\overrightarrow{OA} = \mathbf{a}$
$\overrightarrow{OC} = \mathbf{c}$

(a) Find, in terms of **a** and/or **c**, the vectors

  (i) $\overrightarrow{MB}$,

....

  (ii) $\overrightarrow{MN}$.

....
(2)

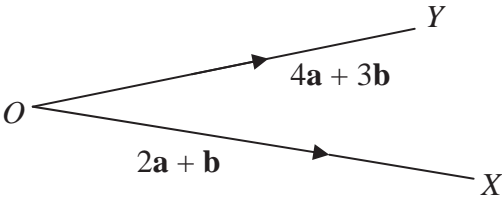(b) Show that *CA* is parallel to *MN*.

(2)   Q4

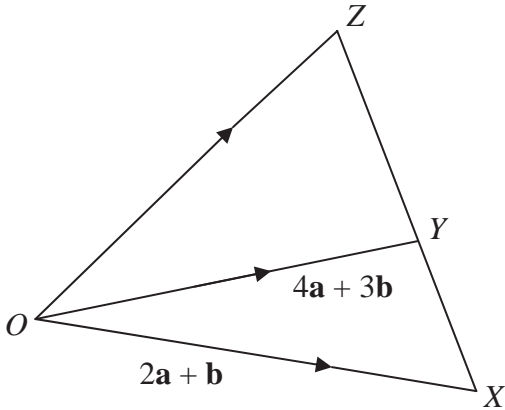**(Total 4 marks)**

5.

Diagram **NOT**
accurately drawn

$\overrightarrow{OX} = 2\mathbf{a} + \mathbf{b}$

$\overrightarrow{OY} = 4\mathbf{a} + 3\mathbf{b}$

(a) Express the vector $\overrightarrow{XY}$ in terms of **a** and **b**
Give your answer in its simplest form.

....
(2)

Diagram **NOT** accurately drawn

Z

Y

4**a** + 3**b**

O

2**a** + **b**

X

XYZ is a straight line.
XY : *YZ* = 2 : 3

(b) Express the vector $\overrightarrow{OZ}$ in terms of **a** and **b**
   Give your answer in its simplest form.

....

(3)

Q5

(Total 5 marks)

6.
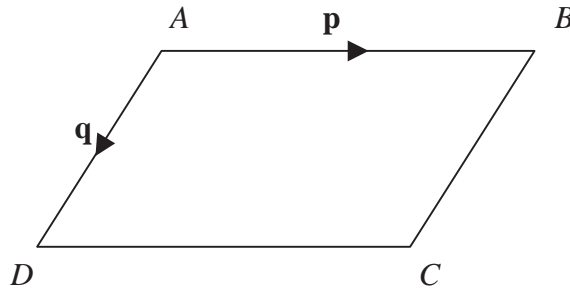
Diagram **NOT** accurately drawn

ABCD is a parallelogram.
AB is parallel to *DC*.
AD is parallel to *BC*.

$\overrightarrow{AB} = \mathbf{p}$

$\overrightarrow{AD} = \mathbf{q}$

(a) Express, in terms of **p** and **q**

  (i) $\overrightarrow{AC}$

(i)...............................

  (ii) $\overrightarrow{BD}$

(ii)...............................

(2)

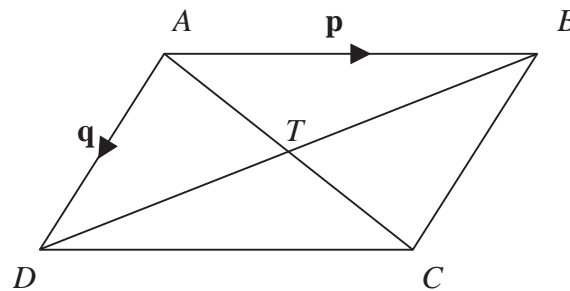Diagram **NOT** accurately drawn

AC and *BD* are diagonals of parallelogram *ABCD*.
AC and *BD* intersect at *T*.

(b) Express $\overrightarrow{AT}$ in terms of **p** and **q**.

....

(1)

(Total 3 marks)

Q6

7.
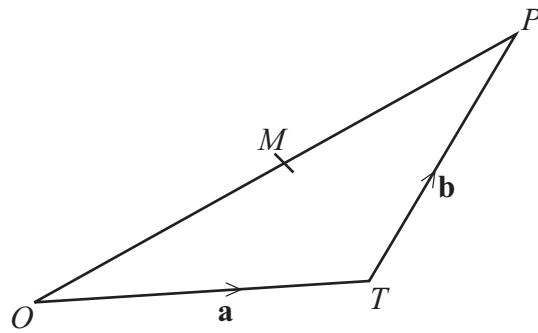
Diagram **NOT** accurately drawn

OPT is a triangle.
M is the midpoint of *OP*.

$\overrightarrow{OT} = \mathbf{a}$

$\overrightarrow{TP} = \mathbf{b}$

(a) Express $\overrightarrow{OM}$ in terms of **a** and **b**.

$\overrightarrow{OM} = $ ....

(2)

(b) Express $\overrightarrow{TM}$ in terms of **a** and **b**.
Give your answer in its simplest form.

$\overrightarrow{TM} = $ ....
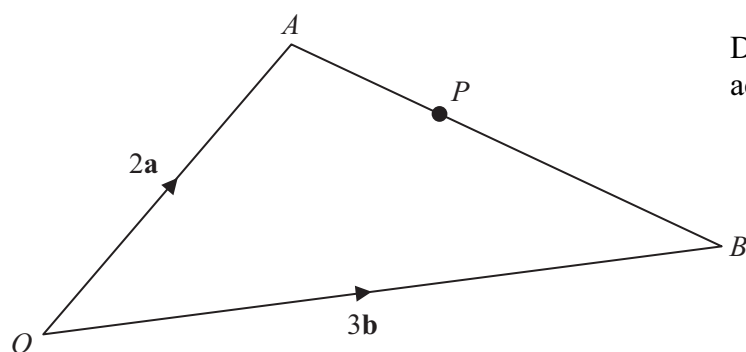
(2)

Q7

(Total 4 marks)

8.

Diagram **NOT** accurately drawn

OAB is a triangle.

$\overrightarrow{OA} = 2\mathbf{a}$

$\overrightarrow{OB} = 3\mathbf{b}$

(a) Find $\overrightarrow{AB}$ in terms of **a** and **b**.

$\overrightarrow{AB}$ = ...
(1)

P is the point on *AB* such that *AP* : *PB* = 2 : 3

(b) Show that $\overrightarrow{OP}$ is parallel to the vector **a** + **b**.

(3)

(Total 4 marks)