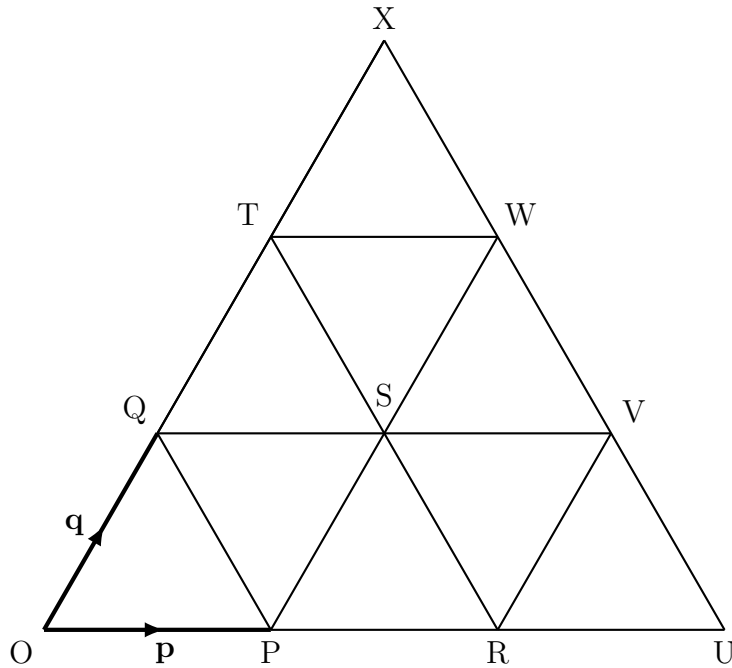


1. The diagram below shows 9 congruent triangles.



$\vec{OP} = \mathbf{p}$  {Handwriting **bold** is hard to do so mathematicians write p instead of **p**}

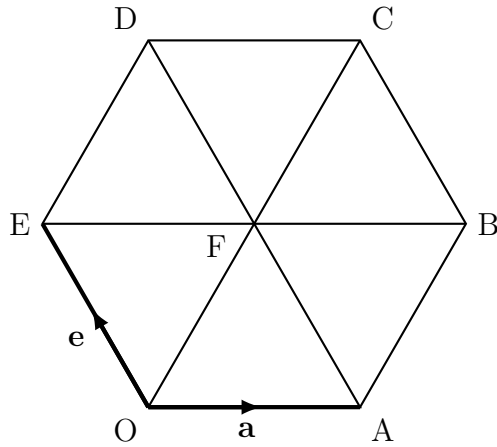
$\vec{OQ} = \mathbf{q}$  {and write q instead of **q**}

Find in terms of **p** and **q** the vectors

(i)  $\vec{QX} = \dots\dots\dots$

(ii)  $\vec{RU} = \dots\dots\dots$

2. The diagram below shows regular hexagon OBCDEF



$$\vec{OA} = \mathbf{a} \quad \{\text{Handwriting } \mathbf{bold} \text{ is hard to do so mathematicians write } \underline{\mathbf{a}} \text{ instead of } \mathbf{a}\}$$

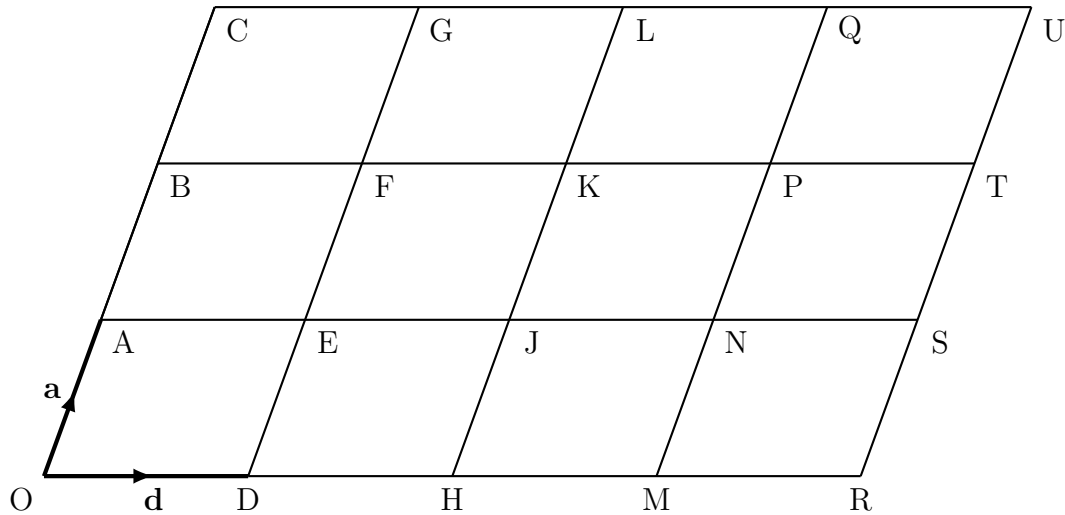
$$\vec{OE} = \mathbf{e} \quad \{\text{and write } \underline{\mathbf{e}} \text{ instead of } \mathbf{e}\}$$

Write an expression, in terms of  $\mathbf{a}$  and  $\mathbf{b}$  for

(i)  $\vec{AD} = \dots\dots\dots$

(ii)  $\vec{FB} = \dots\dots\dots$

3. The diagram below shows 12 congruent parallelograms.



$\vec{OA} = \mathbf{a}$  {Handwriting **bold** is hard to do so mathematicians write a instead of **a**}

$\vec{OB} = \mathbf{d}$  {and write d instead of **d**}

Find in terms of **a** and **d** the vectors

(i)  $\vec{AC} = \dots\dots\dots$

(ii)  $\vec{GU} = \dots\dots\dots$

## Answers

1. (i)  $2q$  (ii)  $p$
2. (i)  $2e$  (ii)  $a$
3. (i)  $2a$  (ii)  $3d$