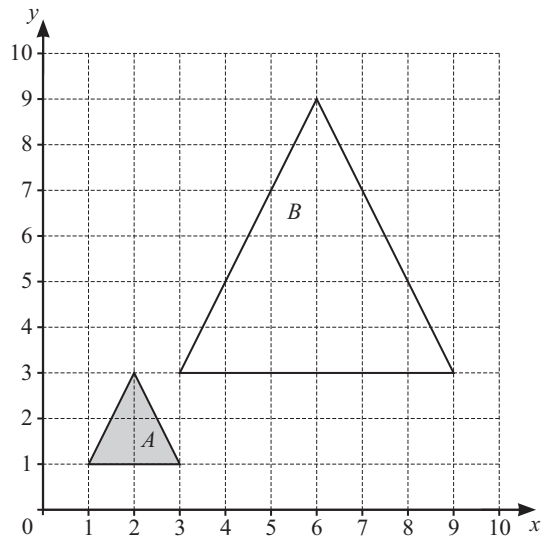


22 The diagram shows triangles A and B .



Describe fully the **single** transformation that maps triangle A onto triangle B .

.....

..... [3]

2 Find the largest **odd** number that is a common factor of 90 and 120.

..... [1]

8 $DE = \begin{pmatrix} \tilde{} \\ -4 \end{pmatrix}$

(a) Find $5\overrightarrow{DE}$.

$\begin{pmatrix} \\ \end{pmatrix}$ [1]

(b) Find $|\overrightarrow{DE}|$.

..... [2]

(c) D is the point $(-2, -3)$.

Find the coordinates of the point E .

(..... ,) [2]

20 Work out $0.1\dot{1}4 + 0.2$.

Give your answer as a fraction.

..... [3]

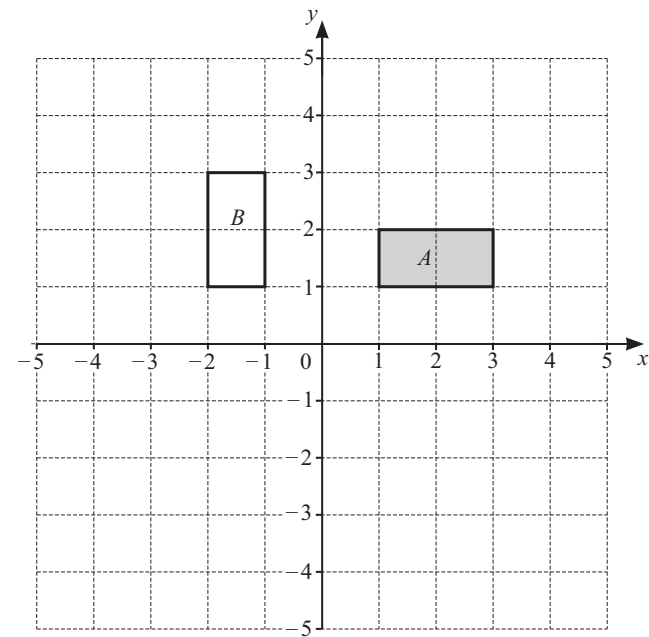
- 3 In the USA, one gallon of fuel costs \$4.83 .
In the UK, one litre of fuel costs £1.62 .

The exchange rate is £1 = \$1.215 .
1 gallon = 3.785 litres

In which country does 1 litre of fuel cost more and by how much?
Give your answer in dollars.

..... by \$ [3]

- 21 Shapes A and B are shown on the grid.

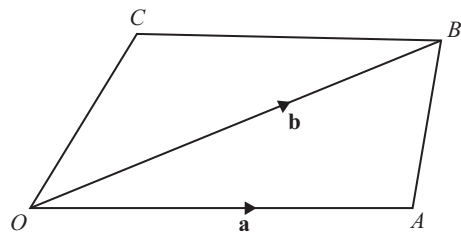


- (a) Describe fully the **single** transformation that maps shape A onto shape B .

.....
..... [3]

- (b) Draw the image of shape A after a reflection in the line $y = -1$. [2]

18



In the diagram, OA is parallel to CB .

$OA : CB = 4 : 3$

$\vec{OA} = \mathbf{a}$ and $\vec{OB} = \mathbf{b}$.

- (a) Find $\vec{AB}$ in terms of $\mathbf{a}$ and $\mathbf{b}$.

$\vec{AB} = \dots\dots\dots$ [1]

- (b) M is the midpoint of OC .

Find $\vec{AM}$ in terms of $\mathbf{a}$ and $\mathbf{b}$.

Give your answer in its simplest form.

$\vec{AM} = \dots\dots\dots$ [3]

8

$$\mathbf{m} = \begin{pmatrix} 4 \\ 5 \end{pmatrix} \quad \mathbf{n} = \begin{pmatrix} 2 \\ -3 \end{pmatrix}$$

- (a) Find $2\mathbf{m} - \mathbf{n}$.

$\begin{pmatrix} \\ \end{pmatrix}$ [2]

- (b) The vector $\begin{pmatrix} 5 \\ \sqrt{y} \end{pmatrix}$ has a magnitude of 7.

Find the value of y .

$y = \dots\dots\dots$ [2]