

Transformations - Worksheet

Skill

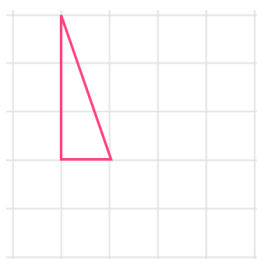
Group A - congruent and similar shapes

- Write pairs of shapes that are congruent.
- Write pairs of shapes that are similar

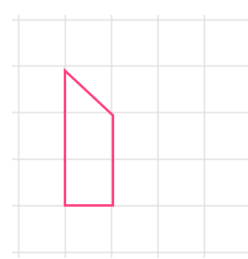
1)



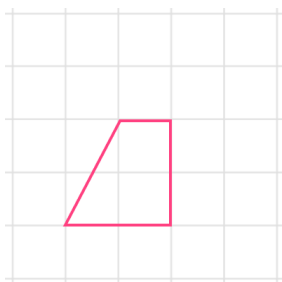
2)



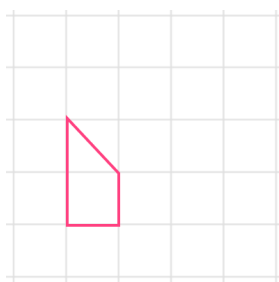
3)



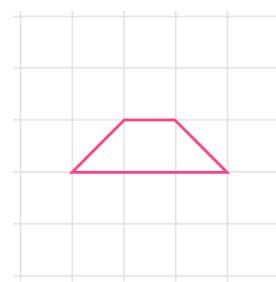
4)



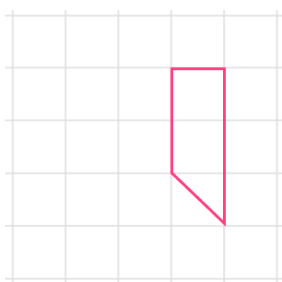
5)



6)



7)



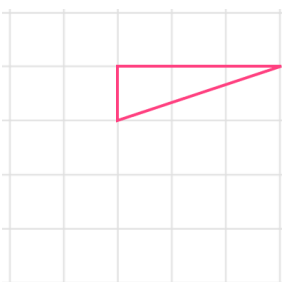
8)



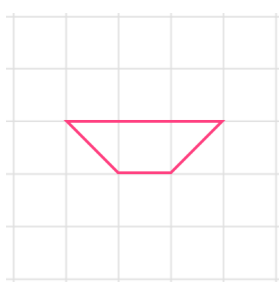
9)



10)



11)



12)

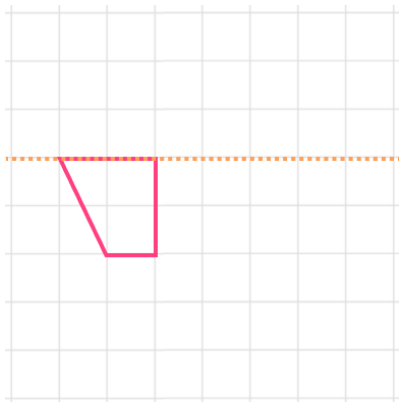


Transformations - Worksheet

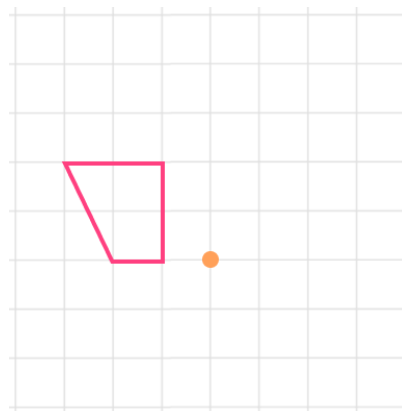
Group B - Reflect or Rotate

Carry out the transformation

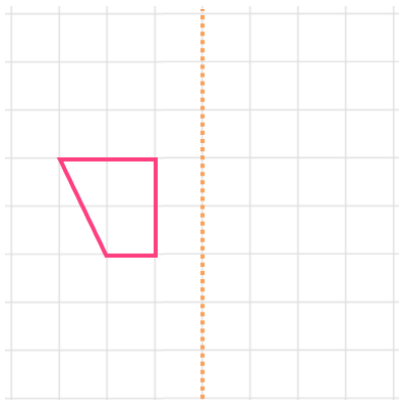
1) Reflect



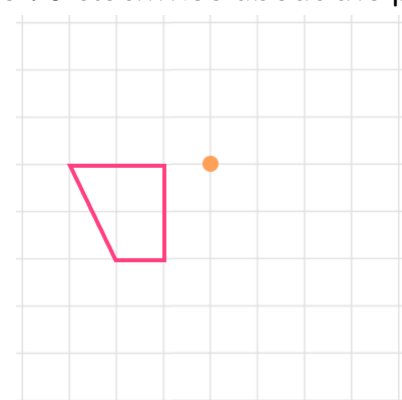
2) Rotate 180° about the point



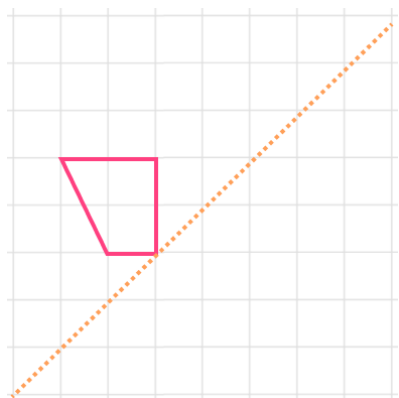
3) Reflect



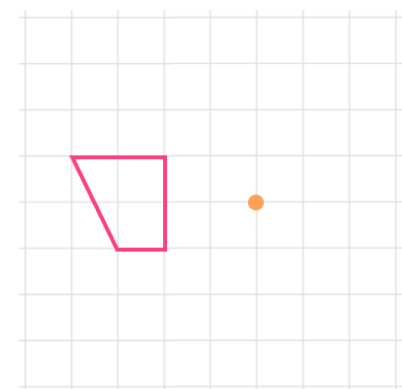
4) Rotate 90° clockwise about the point



5) Reflect



6) Rotate 90° anti-clockwise about the point



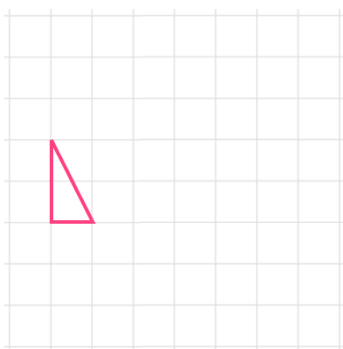
Transformations - Worksheet

Group C - translations and enlargements

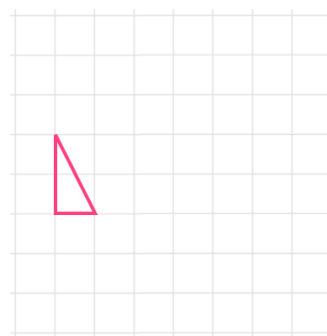
Carry out the transformation

1) Translate using the vector

$$\begin{pmatrix} 2 \\ 3 \end{pmatrix}$$

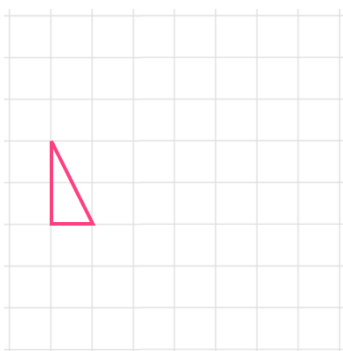


2) Enlarge scale factor 2

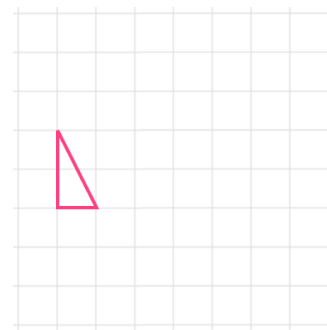


3) Translate using the vector

$$\begin{pmatrix} 4 \\ -1 \end{pmatrix}$$

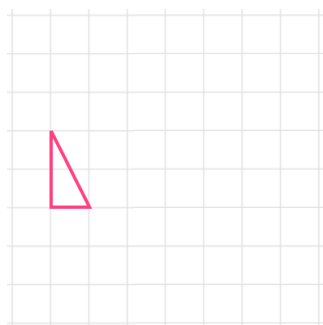


4) Enlarge scale factor 3

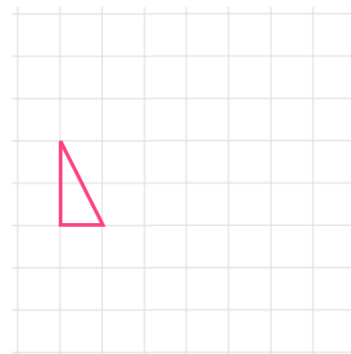


5) Translate using the vector

$$\begin{pmatrix} -1 \\ -2 \end{pmatrix}$$



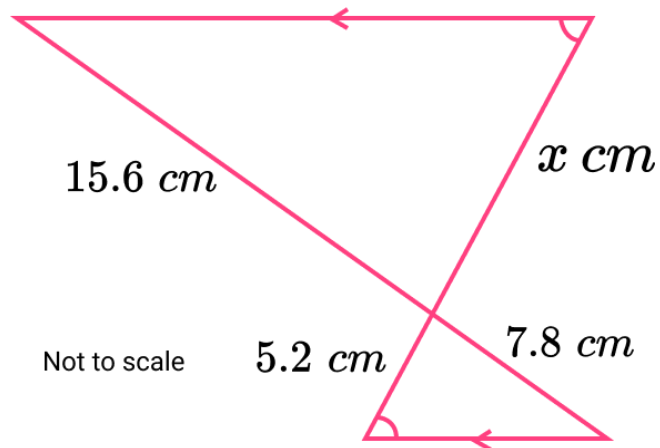
6) Enlarge scale factor 4



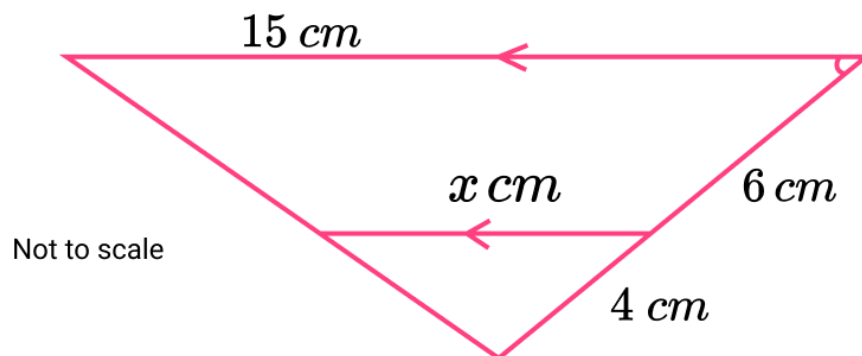
Transformations - Worksheet

Applied

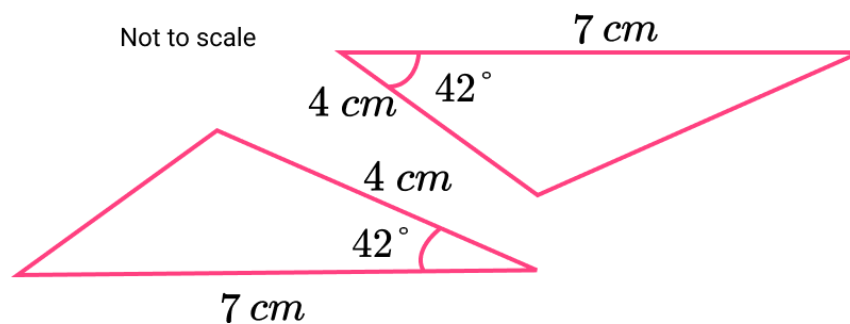
- 1) a) Find the value of x



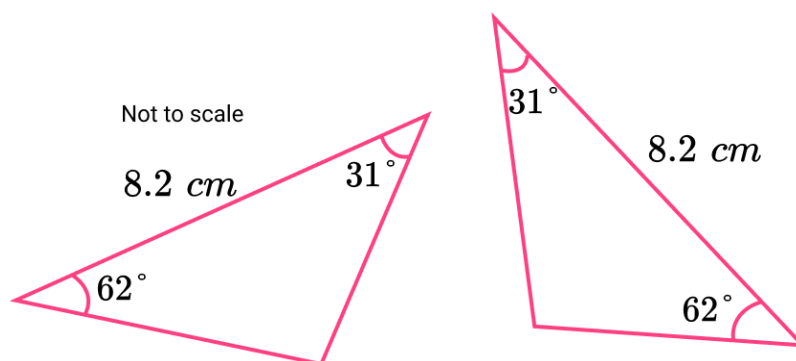
- b) Find the value of x



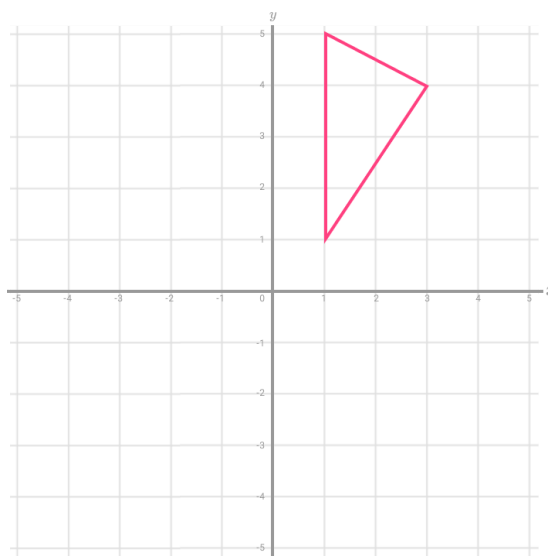
- 2) a) Are these triangles congruent?
If they are congruent, give a reason.



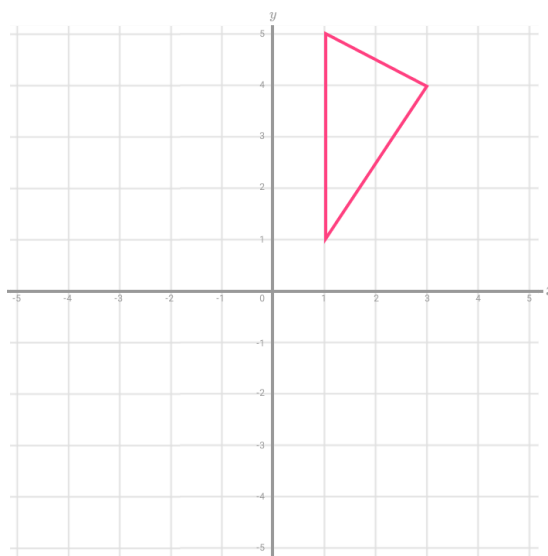
- b) Are these triangles congruent?
If they are congruent, give a reason.



- 3) a) Reflect the shape in the y - axis

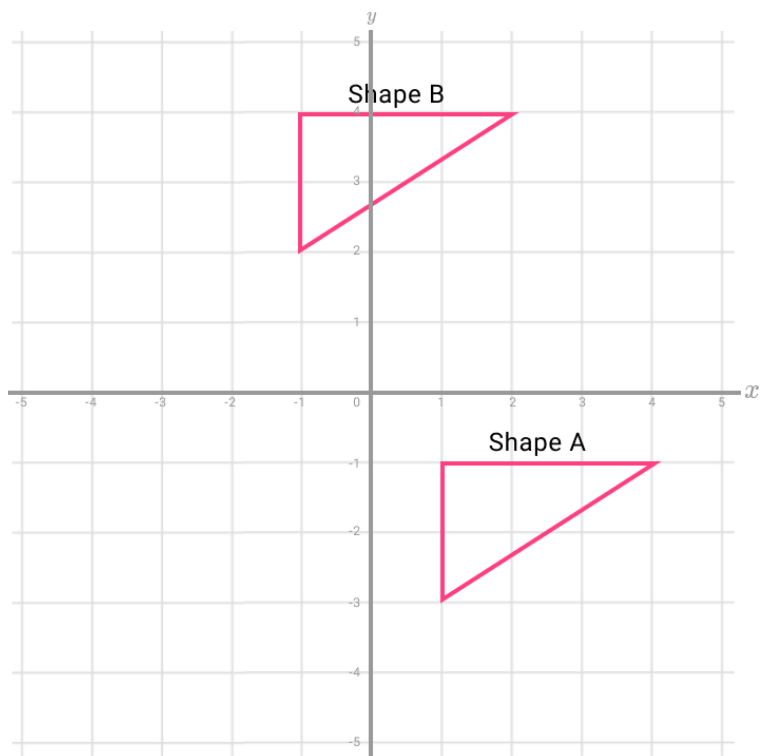


- b) Rotate the shape 180° about the point $(-1, 1)$



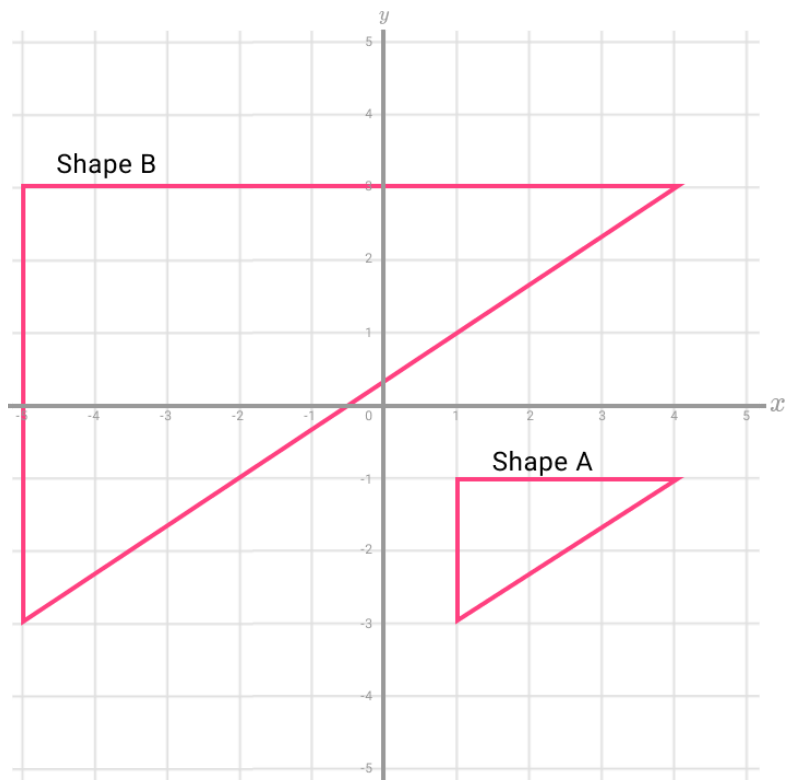
4) a)

What is the vector for the translation of Shape A to Shape B?



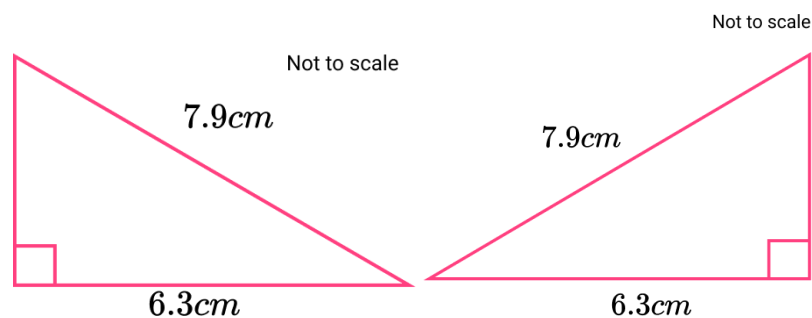
b)

What is the scale factor of enlargement of Shape A to Shape B?
What is the centre of enlargement?



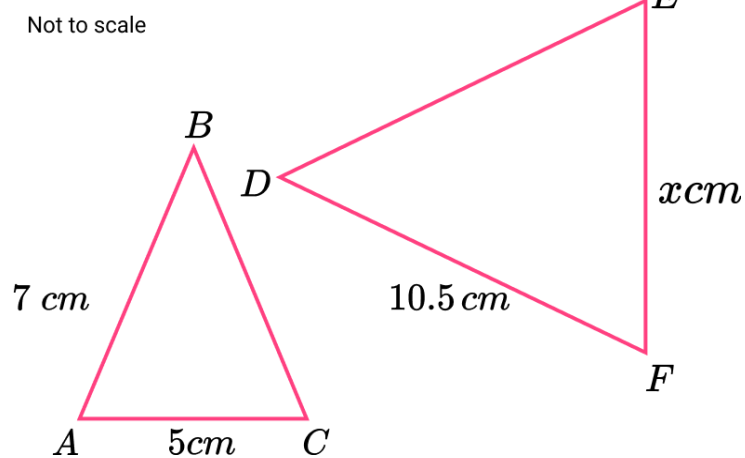
Transformations - Exam Questions

- 1) Explain why the two triangles are congruent.



.....
(1 mark)

- 2) Triangles ABC and DEF are similar.

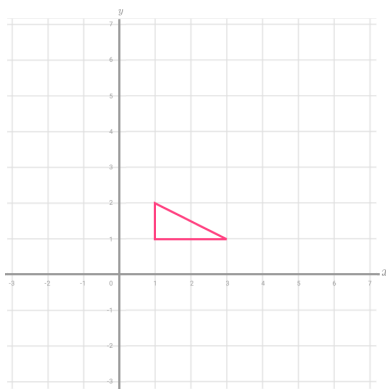


Work out the value of x

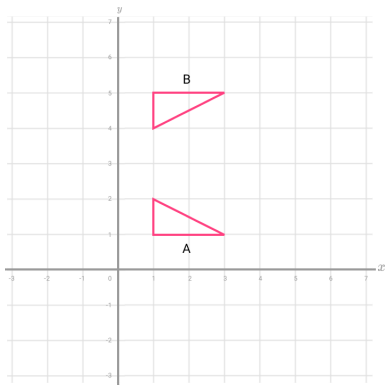
.....
(2 marks)

- 3) (a) Enlarge the shape with scale factor 2, centre $(0, 0)$.

(3)



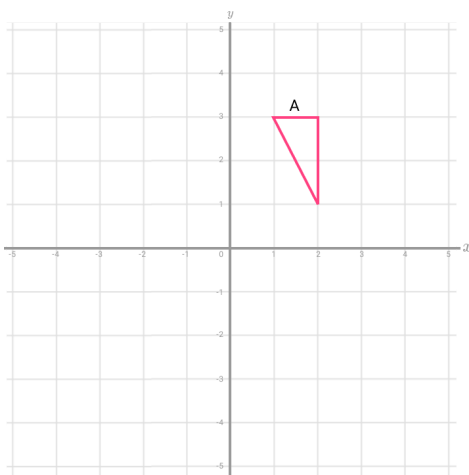
- (b) Describe fully the single transformation that maps shape A onto shape B.



.....
.....
.....

(2)
(5 marks)


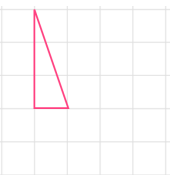
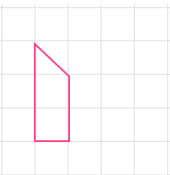
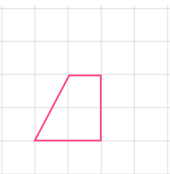
- 4) H Shape A is reflected in the line $x = -1$ to give shape B.
Shape B is reflected in the line $y = 0$ to give shape C.
Describe fully the single transformation that maps shape A onto shape C.



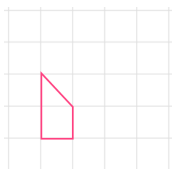
.....
.....
.....

(3 marks)

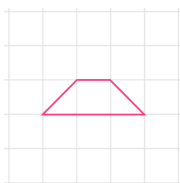
Transformations - Answers

	Question	Answer
Group A	Skill Questions	
	<p>A - Write pairs of shapes that are congruent.</p> <p>B - Write pairs of shapes that are similar</p> <p>1)</p>  <p>2)</p>  <p>3)</p>  <p>4)</p> 	<p>A - congruent pairs</p> <p>2 & 10</p> <p>3 & 7</p> <p>6 & 11</p> <p>B - similar pairs</p> <p>1 & 8</p> <p>4 & 9</p> <p>5 & 12</p>

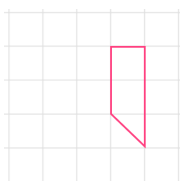
5)



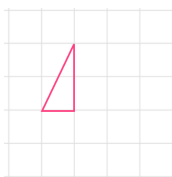
6)



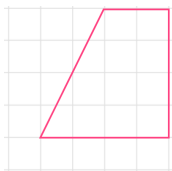
7)



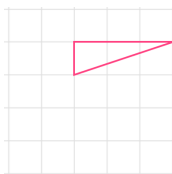
8)



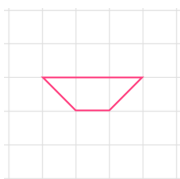
9)



10)



11)



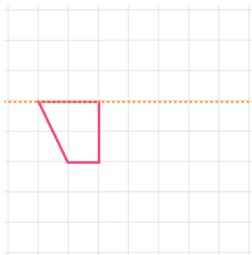
12)



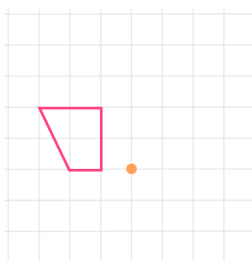
Group B

Carry out the transformation

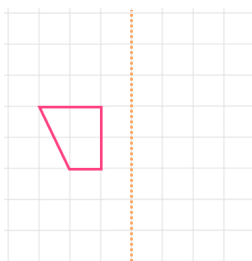
1) Reflect



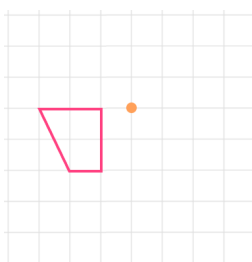
2) Rotate 180° about the point



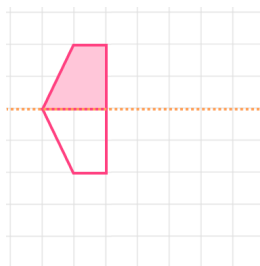
3) Reflect



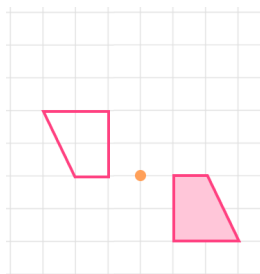
4) Rotate 90° clockwise about the point



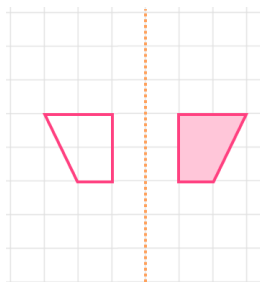
1)



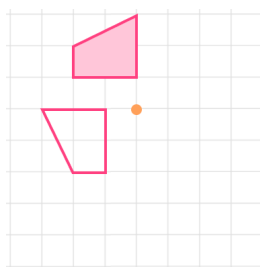
2)



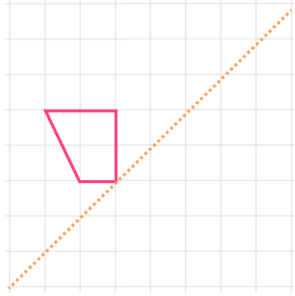
3)



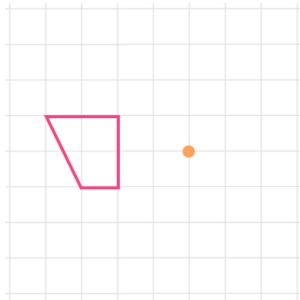
4)



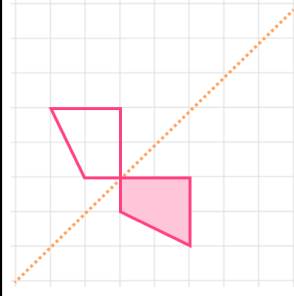
5) Reflect



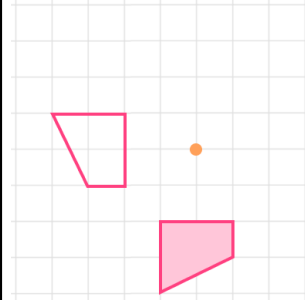
6) Rotate 90° anti-clockwise about the point



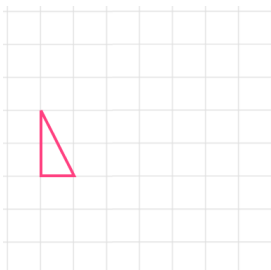
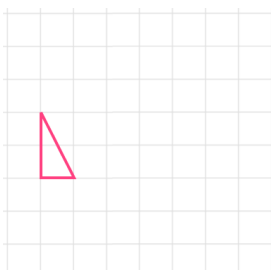
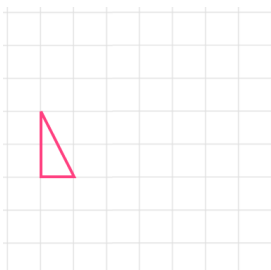
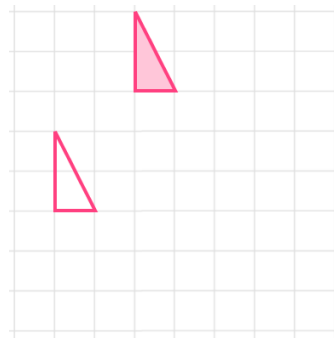
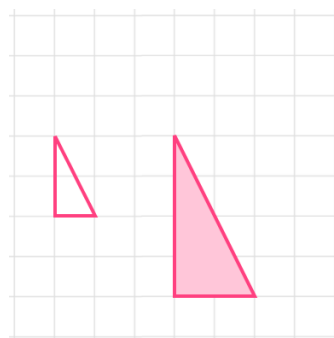
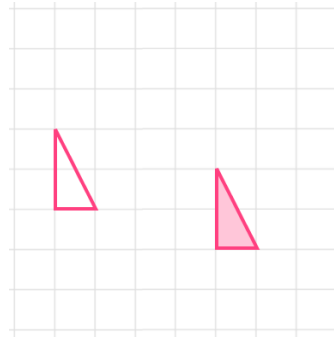
5)



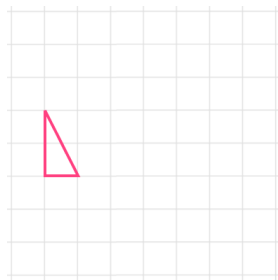
6)



Transformations - Answers

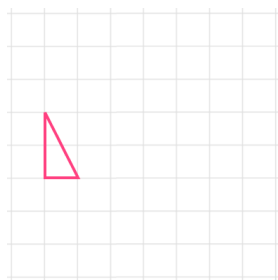
	Question	Answer
Group C	Skill Questions	
	<p>Rubric:</p> <p>1) Translate using the vector</p> $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$  <p>2) Enlarge scale factor 2</p>  <p>3) Translate using the vector</p> $\begin{pmatrix} 4 \\ -1 \end{pmatrix}$ 	<p>1)</p>  <p>2)</p>  <p>3)</p> 

4) Enlarge scale factor 3

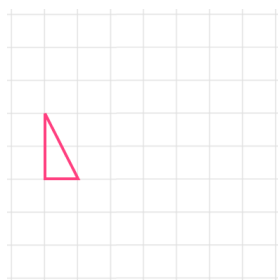


5) Translate using the vector

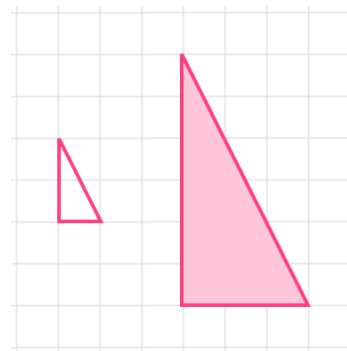
$$\begin{pmatrix} -1 \\ -2 \end{pmatrix}$$



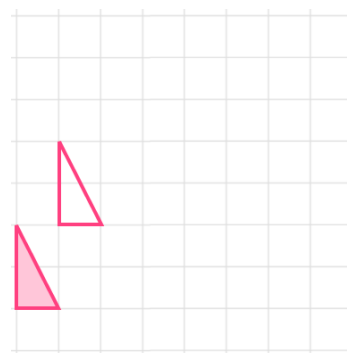
6) Enlarge scale factor 4



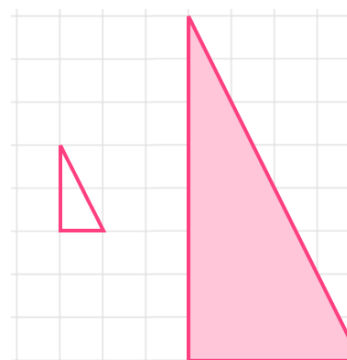
4)



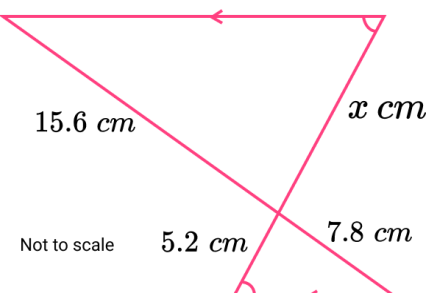
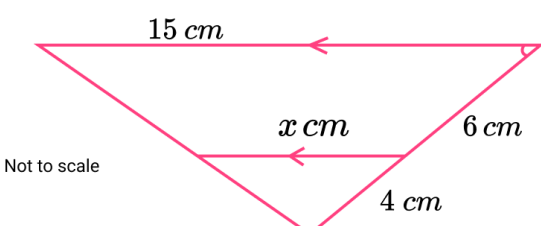
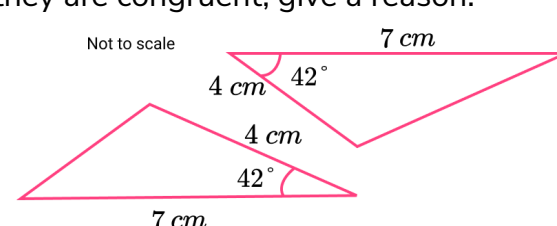
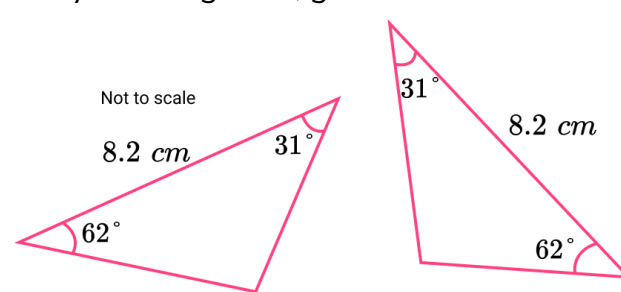
5)

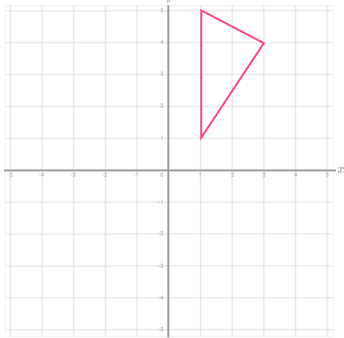
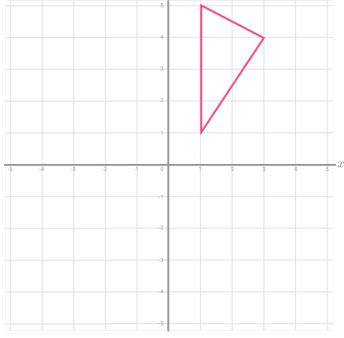
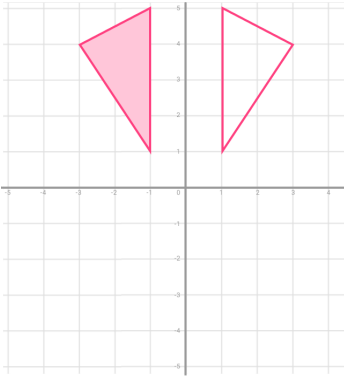
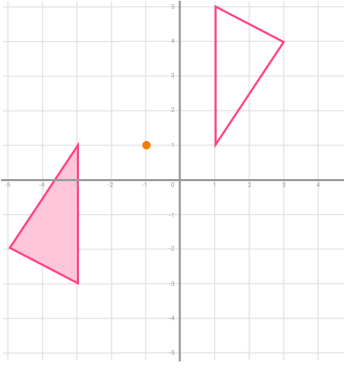
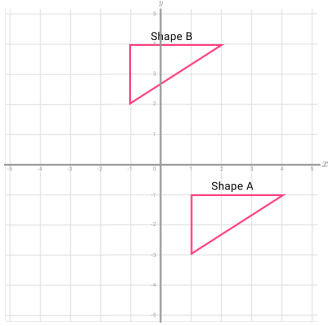
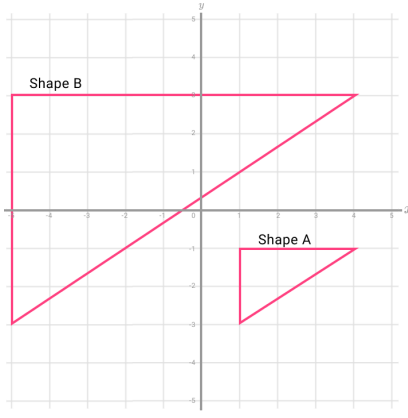


6)

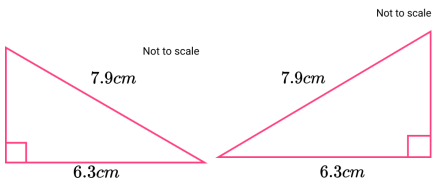
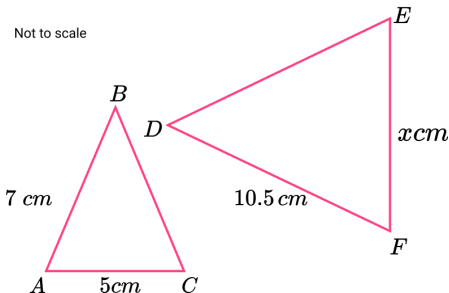
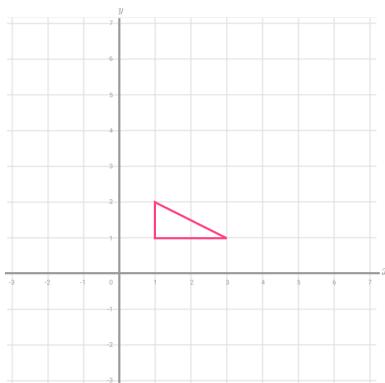
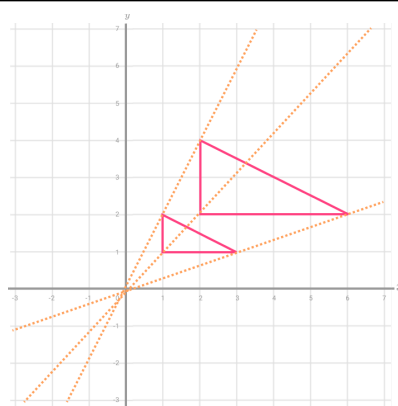


Transformations - Answers

	Question	Answer
	Applied Questions	
1)	<p>a) Find the value of x</p>  <p>Not to scale</p> <p>b) Find the value of x</p>  <p>Not to scale</p>	<p>a) $x = 10.4$</p> <p>b) $x = 6$</p>
2)	<p>a) Are these triangles congruent? If they are congruent, give a reason.</p>  <p>Not to scale</p> <p>b) Are these triangles congruent? If they are congruent, give a reason.</p>  <p>Not to scale</p>	<p>Yes - The triangles are congruent because side-angle-side (SAS).</p> <p>a)</p> <p>Yes - The triangles are congruent because angle-side-angle (ASA).</p> <p>b)</p>

<p>2)</p>	<p>a) Reflect the shape in the y – axis</p>  <p>b)</p> <p>Rotate the shape 180° about the point $(-1,1)$</p> 	<p>a)</p>  <p>b)</p> 
<p>3)</p>	<p>a) What is the vector for the translation of Shape A to Shape B?</p>  <p>b) What is the scale factor of enlargement of Shape A to Shape B? What is the centre of enlargement?</p> 	<p>Translation</p> <p>a) $\begin{pmatrix} -2 \\ 5 \end{pmatrix}$</p> <p>Enlargement</p> <p>Scale Factor 3</p> <p>b) Centre of enlargement $(4, -3)$</p>

Transformations - Answers

	Question	Answer
	Exam Questions	
1)	<p>Explain why the two triangles are congruent.</p> 	<p>Right angle, hypotenuse and one side are the same (RHS) (1)</p>
2)	<p>Triangles ABC and DEF are similar.</p> 	<p> $10.5 \div 7 = 1.5$ (1) $x = 5 \times 1.5 = 7.5$ (1) </p>
3) (a)	<p>Enlarge the shape with scale factor 2, centre (0, 0).</p> 	<p>(a)</p>  <p> For one correct vertex (1) For second correct vertex (1) For third correct vertex (1) </p>

(b)	<p>Describe fully the single transformation that maps shape A onto shape B.</p>	(b)	(2)
4) H	<p>Shape A is reflected in the line $x = -1$ to give shape B. Shape B is reflected in the line $y = 0$ to give shape C. Describe fully the single transformation that maps shape A onto shape C.</p>	<p>Reflection (1) In line $y = 3$ (1)</p>	(3)

Do you have KS4 students who need additional support in maths?

Our specialist tutors will help them develop the skills they need to succeed at GCSE in weekly one to one online revision lessons. Trusted by secondary schools across the UK.

Visit thirdspacelearning.com to find out more.