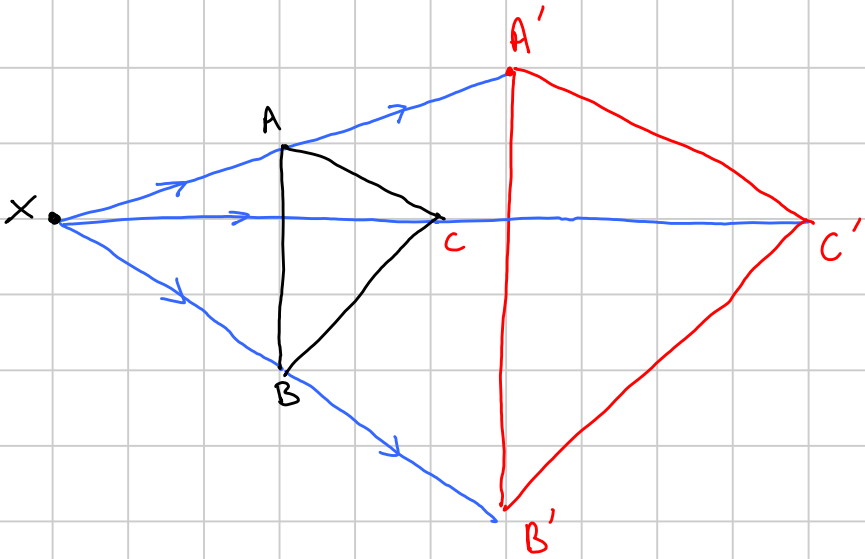
ENLARGEMENTS

Note Title 09/01/2009

An enlargement has a CENTRE and a SCALE FACTOR.

Example 1 Draw shape A'B'C', which is an enlargement of ABC with centre X and scale factor 2



$\overrightarrow{XA} = \begin{pmatrix} 3 \\ 1 \end{pmatrix}$ so $\overrightarrow{XA'} = 2 \times \begin{pmatrix} 3 \\ 1 \end{pmatrix} = \begin{pmatrix} 6 \\ 2 \end{pmatrix}$

$\overrightarrow{XB} = \begin{pmatrix} 3 \\ -2 \end{pmatrix}$ so $\overrightarrow{XB'} = 2 \times \begin{pmatrix} 3 \\ -2 \end{pmatrix} = \begin{pmatrix} 6 \\ -4 \end{pmatrix}$

$\overrightarrow{XC} = \begin{pmatrix} 5 \\ 0 \end{pmatrix}$ so $\overrightarrow{XC'} = 2 \times \begin{pmatrix} 5 \\ 0 \end{pmatrix} = \begin{pmatrix} 10 \\ 0 \end{pmatrix}$

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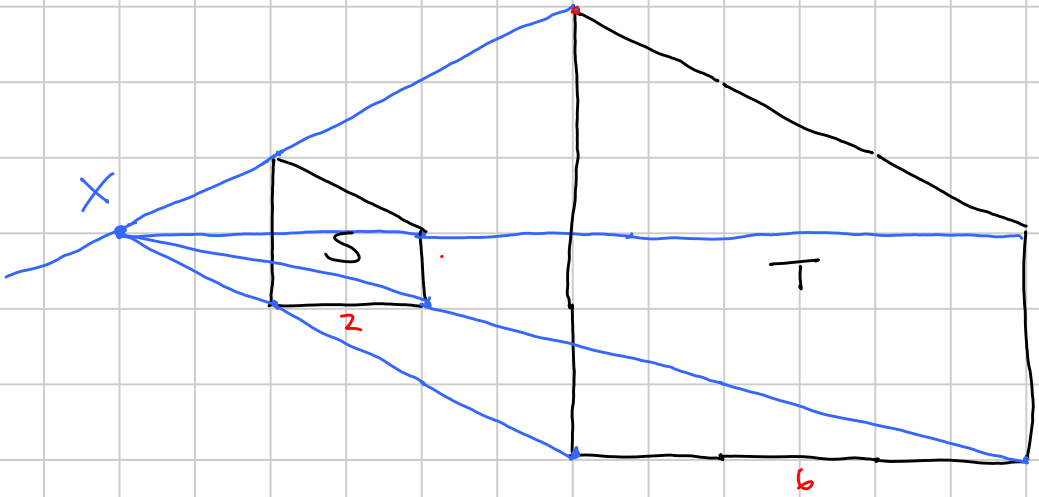
Example 2



Find the centre and scale factor of the enlargement which takes

(a) S to T

(b) T to S

Draw lines joining corresponding corners of the shapes. Where these lines meet is the centre of the enlargement.

(a) S to T : Centre X , Scale factor $\frac{6}{2} = 3$

(b) T to S : Centre X , Scale factor $\frac{2}{6} = \frac{1}{3}$

NB Even if the shape is reduced in size we still call the transformation an ENLARGEMENT, but the scale factor is a fraction.