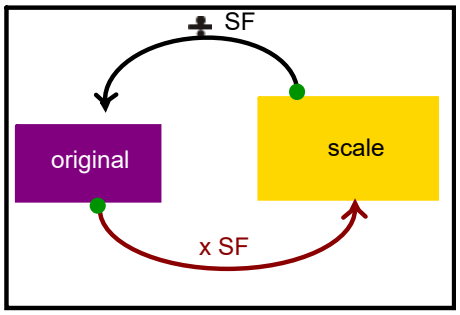
Ch 7: Similar Triangles, Scale Factor & Transformations

Scale Factor = $\frac{\text{Scale Diagram}}{\text{Original Diagram}}$

If the scale factor is less than one, the diagram is a reduction,

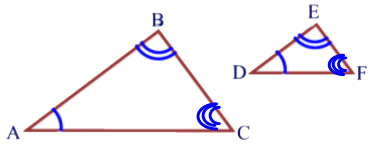
If the scale factor is larger than one the diagram is an enlargement.



1) TRIANGLES ARE SIMILAR IF:

AAA (ANGLE ANGLE ANGLE)

- ALL THREE PAIRS OF CORRESPONDING ANGLES ARE THE SAME. ...



If Original Scale

< A= < D

< B = <E

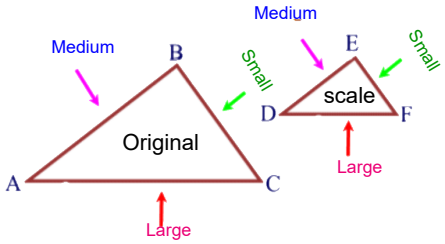
<C = <F

△ ABC ~ △ DEF (AAA)

2) TRIANGLES ARE SIMILAR IF:

SSS IN SAME PROPORTION (SIDE SIDE SIDE)

- ALL THREE PAIRS OF CORRESPONDING SIDES ARE IN THE SAME PROPORTION. ...



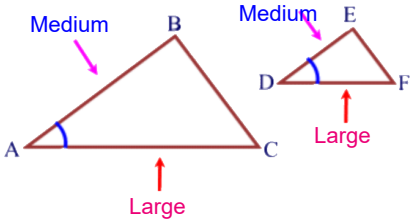
If the side ratios are the same

Small		Medium		Large
$\frac{EF}{BC}$	=	$\frac{DE}{AB}$	=	$\frac{DF}{AC}$

△ ABC ~ △ DEF (SSS)

3) TRIANGLES ARE SIMILAR IF:

- SAS (SIDE ANGLE SIDE)
- TWO PAIRS OF SIDES IN THE SAME PROPORTION AND THE INCLUDED ANGLE EQUAL.



△ ABC ~ △ DEF (SAS)

If Side Med Side Large

$\frac{DE}{AB} = \frac{DF}{AC}$

Angle in between two sides <A = < D

Order :

Number of times a shape coincides with the original shape within a 360° turn

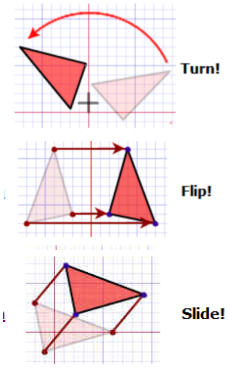
Angle of Rotation = $\frac{360^\circ}{\text{order}}$

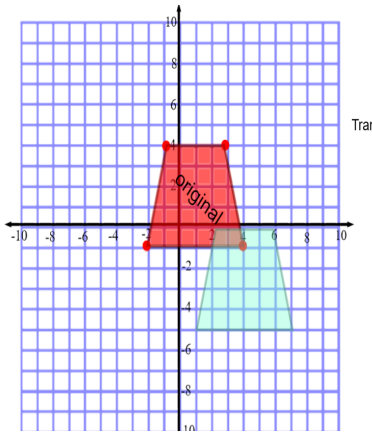
order = $\frac{360^\circ}{\text{angle of rotation}}$

Transformations

There are three types of transformations:

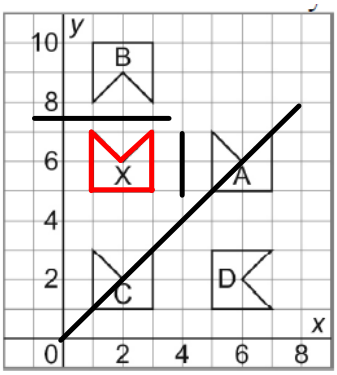
1. reflections [Line of reflection]
   - Reflect through x-axis
   - Reflect through y-axis
   - *oblique two coordinates
2. rotations
   - order of rotation
   - angle of rotation
3. translations [slide] [L3U2]
   Left 3 up 2
   right 4 down2 [R4 D2]





Translate the shape:
Right 3 units and 4 Unit Down

Notation:

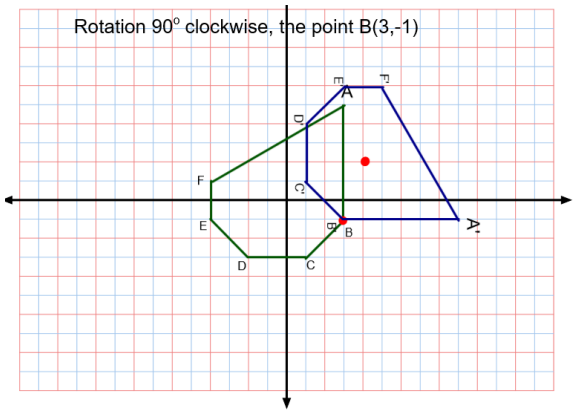


A: reflected in vertical line passing through 4 on the x-axis

B: reflected in horizontal line passing through 7.5 on the y-axis

C: not related to X by line symmetry

D: reflected in oblique line passing through (0, 0) and (8, 8)
Oblique just means a slanted line



A(3, 5) E(-4,-1) A'(9 , -1) E'(3,6)

B(3,-1) F(-4, 1) B'(3 ,-1) F'(5,6)

C(1,-3) C'(1 , 1)

D(-2,-3) Extend Page D'(1 ,4)