

7 - Transformations, Constructions and Loci

Congruent →

- ASA → Angle Side Angle
- SSS → Side Side Side
- SAS → Side Angle Side
- RHS → Right Angle Hypotenuse Side

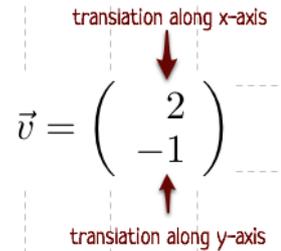
Transformations

Translation →

- Shape is translated to a new area.
- Orientation of shape does not change.
- Movement is always Horizontal/Vertical
- Shape size does not change.

Vectors =

- top = x axis, Right +, Left -
- bottom = y axis, Up+, Down -



Reflection → Shape reflects off mirror lines e.g. $y = 1$, $x = 5$

- vertical/horizontal. Diagonal if perpendicular.

Rotation → Shape rotates a certain amount of ° around centre of rotation.

e.g. clockwise (direction), (0,0) (centre of rotation), 90° (degrees)

- Same size, change of orientation.

Enlargement → Scales shape into a bigger or smaller form/size.

- Scale of enlargement → Positive = Bigger shape
Negative = opposite side of C.O.E
Fractional = smaller shape
- Minimum 3 rays
- Measure distance then follow from C.O.E

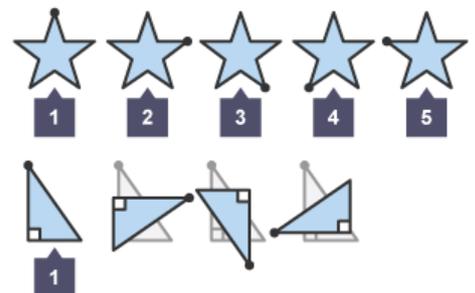
Describing Transformations →

- Reflection, axis
- Enlargement, sf, C.O.E
- Rotation, degree, direction, C.O.R
- Translation, vector

Invariant = Points that do not change when transformed, e.g. if they are on the line of reflection.

Rotational symmetry

- How many times can the shape be rotated around 360° to form the same position.



Loci

Locus: The movement of a point according to a given rule.

The plural of locus is loci

Equidistant = equal distance

Given rule will change depending on question

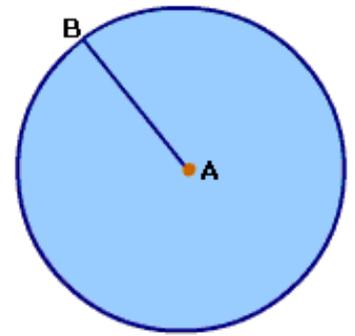
= Solid Line

< Shade inside, dotted line

> Shade around, dotted line

≤ Shade inside, solid line

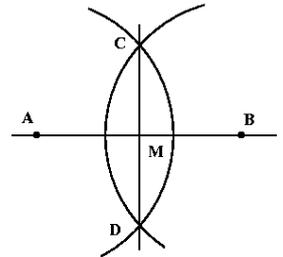
≥ Shade around, solid line



Bisectors:

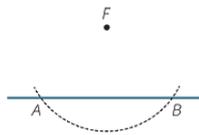
Perpendicular of straight line:

1. On Straight line, put compass on one end of line (A)
2. Measure compass to just over half way (M) and draw a semi circle around and through the straight line
3. Do the same from the other end of the line (B)
4. Draw a straight line between the two semi circle intersections (CD)

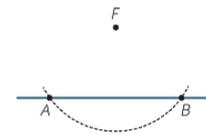


Perpendicular from a point to a line:

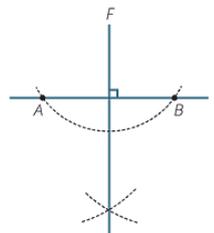
1. From given point (F), construct a semi circle through and around the opposite side of the line.
2. From A, construct a line below the semi circle
3. Repeat from B
4. Join the intersection of the two lines with a straight line to point A



Step 1



Step 2



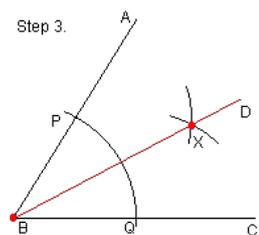
Step 3

Used to find:

- Midpoint of a line sector
- Set of points equidistant from two points
- The region closer to one point than another

Acute angle:

1. On acute angle, draw semi-circle from vertex (B) roughly halfway along the angle, through both lines.
2. Construct another semi circle from point P through the top line (intersection at A) towards the middle
3. Repeat from point Q through the bottom line, intersection at C.
4. Draw straight line from X to B



Used to find:

- Set of points equidistant from two lines
- The region closer to one line than another

Plans and Elevations

