# Construct Basic Loci – SS13

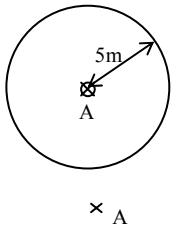
Circle, Race Track, Angles Bisector & Perpendicular Bisector

A **locus** is a point, line or shading that shows all the points that satisfy a given rule. You need to know the general shape of the solution and how to draw the constructions.

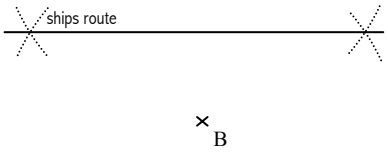
| *The most common loci rules are:* | *The solution shape is a:* | *Construction Method:* |
|---|---|---|
| 1. The fixed distance from a single point | → **Circle** | Compasses centred on the point |
| 2. The equidistance from two points | → **Perpendicular Bisector** | See '*Constructions*' |
| 3. The equidistance from two lines | → **Angle Bisector** | See *'Constructions'* |
| 4. The fixed distance from a line | → **Race Track Shape** | This construction is shown below |

**Examples**

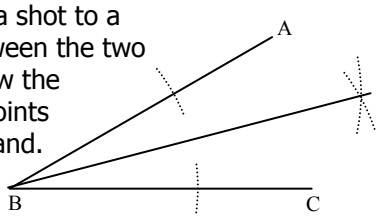
1. A goat is attached to a rope of length 5m, which is attached to a post A. Draw the maximum area that the goat can move.




2. A ship must sail a route equidistant from two buoys A and B. Draw its route.

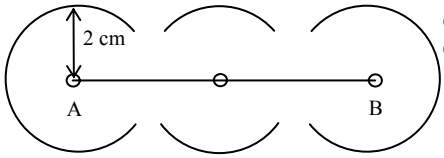



3. A shot-putter throws a shot to a point equidistant between the two lines AB and BC. Draw the line showing all the points where the shot may land.

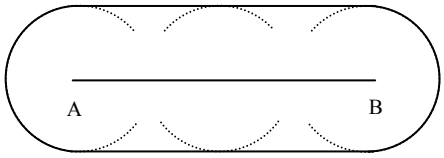



4. Draw the area of the shape 2cm away from the line AB

*Draw a rough ¾ circle centre A and B. With the compasses near the centre of the line, draw an arc above and below the line.*




*Draw a line touching the top of the two ¾ circles and the top arc. Draw a line touching the bottom of the two ¾ circles and the bottom arc.*




**Your Turn!!**

a) Draw a line AB 5cm long. Draw all the points that are 5cm from AB.

b) Draw a line AB 8cm long. Shade the locus of points P, where P is less than 5cm from A and less than 4cm from B.

## RAPID 'ACID' TEST – Blank out the page above before answering these!

Draw all the points that are 5cm from the triangle ABC, where ABC is an equilateral triangle of side 5cm.

*Start by constructing (see constructions) or tracing, or roughly drawing the equilateral triangle.*