

MATHSPOINTS.IE
JUNIOR & LEAVING CERT

CONSTRUCTIONS

LEAVING CERT HIGHER LEVEL

Leaving Certificate Higher Level – Constructions



1. Bisector of a given angle, using only compass and straight edge.

2. Perpendicular bisector of a segment, using only compass and straight edge.

3. Line perpendicular to a given line l , passing through a given point not on l .

4. Line perpendicular to a given line l , passing through a given point on l .

5. Line parallel to given line, through given point.

6. Division of a segment into 2, 3 equal segments, without measuring it.

7. Division of a segment into any number of equal segments, without measuring it.

8. Line segment of given length on a given ray.

9. Angle of given number of degrees with a given ray as one arm.

10. Triangle, given lengths of three sides.

11. Triangle, given SAS data. (Side Angle Side)

12. Triangle, given ASA data. (Angle Side Angle)

13. Right-angled triangle, given the length of the hypotenuse and one other side.

14. Right-angled triangle, given one side and one of the acute angles.

15. Rectangle, given side lengths.

16. Circumcentre and circumcircle of a given triangle, using only straight-edge and compass.

17. Incentre and incircle of a given triangle, using only straight-edge and compass.

18. Angle of 60° , without using a protractor or set square.

19. Tangent to a given circle at a given point on it.

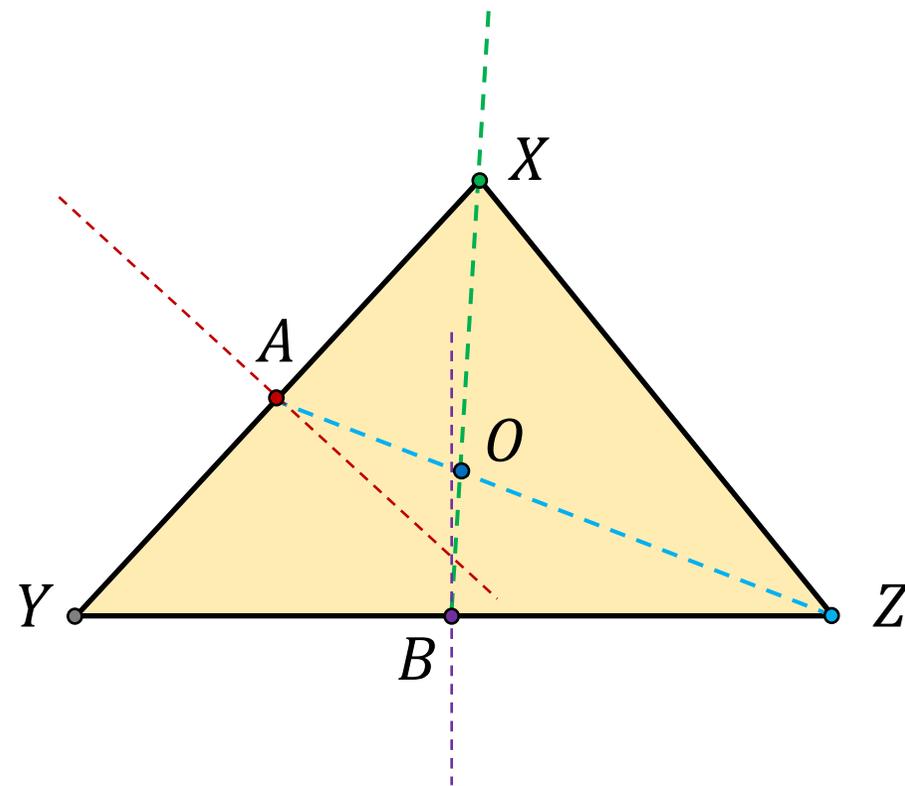
20. Parallelogram, given the length of the sides and the measure of the angles.

21. Centroid of a triangle.

22. Orthocentre of a Triangle

Steps

1. Construct the **midpoint** B , of $[YZ]$
2. Construct the **median** $[BX]$ by joining B to X .
3. Construct the **midpoint** A , of $[XY]$
4. Construct the **median** $[AZ]$ by joining A to Z .
5. The point where **these two medians meet** is the **centroid** of the triangle O .



For 1 and 3 we need to bisect the line using the method outlined in Construction 2 (this will find the midpoint).