

# Constructions and Loci

Name: \_\_\_\_\_

Teacher: \_\_\_\_\_



Remember –

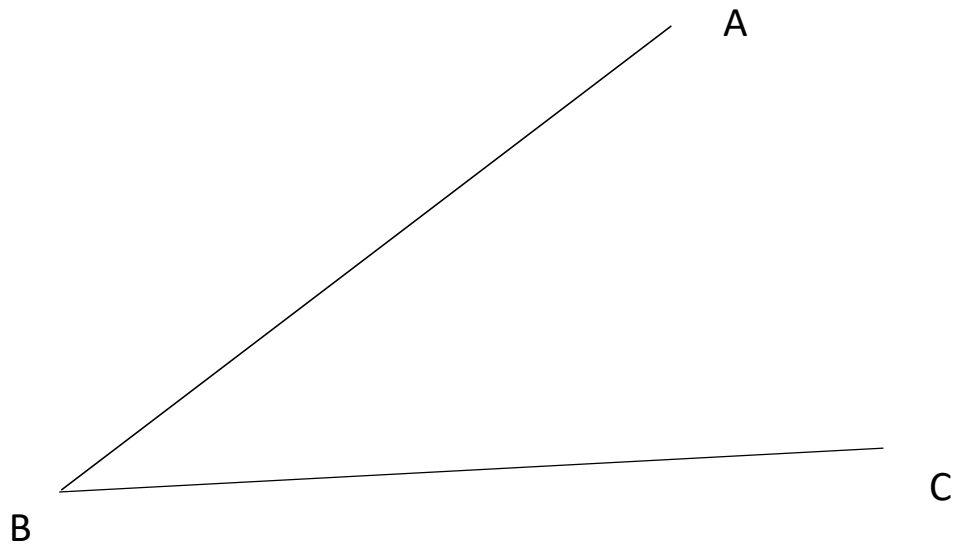
The angle bisector for  $\angle ABC$  will create a line of points that are equidistant (the same distance away) from the lines  $AB$  and  $BC$

The perpendicular bisector for the line  $AB$  will create a line of points that are equidistant from the points  $A$  and  $B$

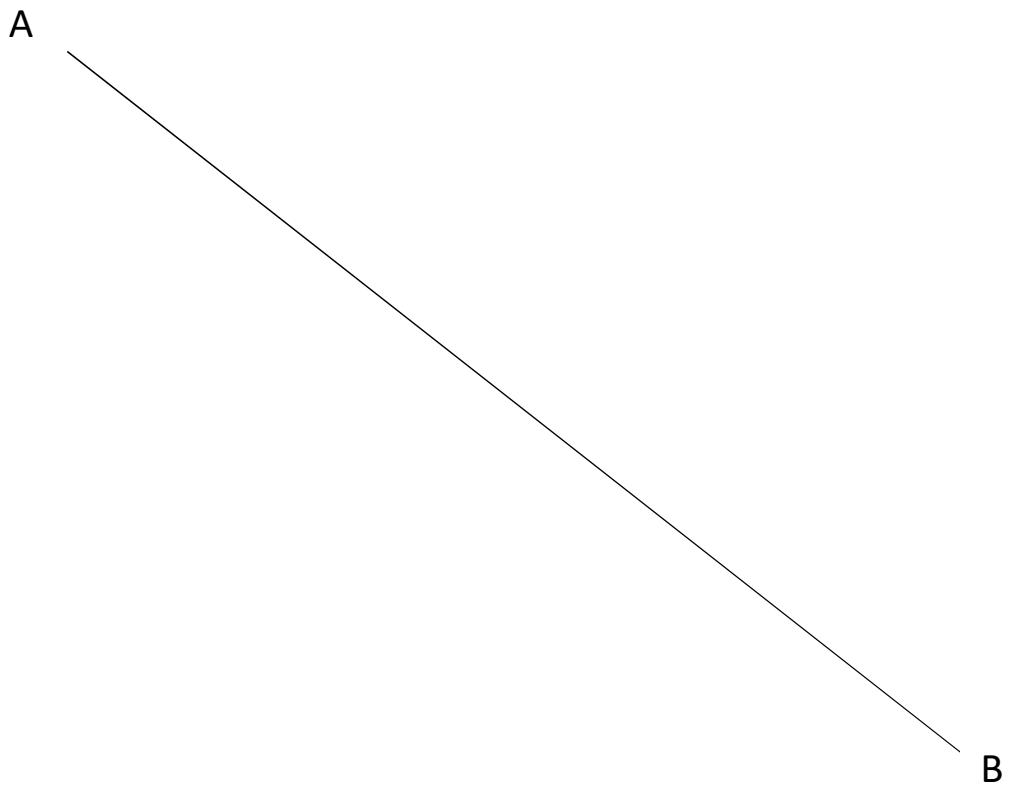
### Using this booklet

- $AB$  (two letters) refers to a line
- $\angle ABC$  (three letters) refers to an angle created by going from  $A$  to  $B$  and finishing at  $C$ , in a clockwise direction (the angle we be around  $B$ )
- If a (P) is on the right of a question, a protractor may be used, it **MUST NOT** be used for any other questions
- Other materials you may use include a ruler, a pair of compasses and a sharp pencil

1. Bisect the angle ABC



2. Bisect the Line AB



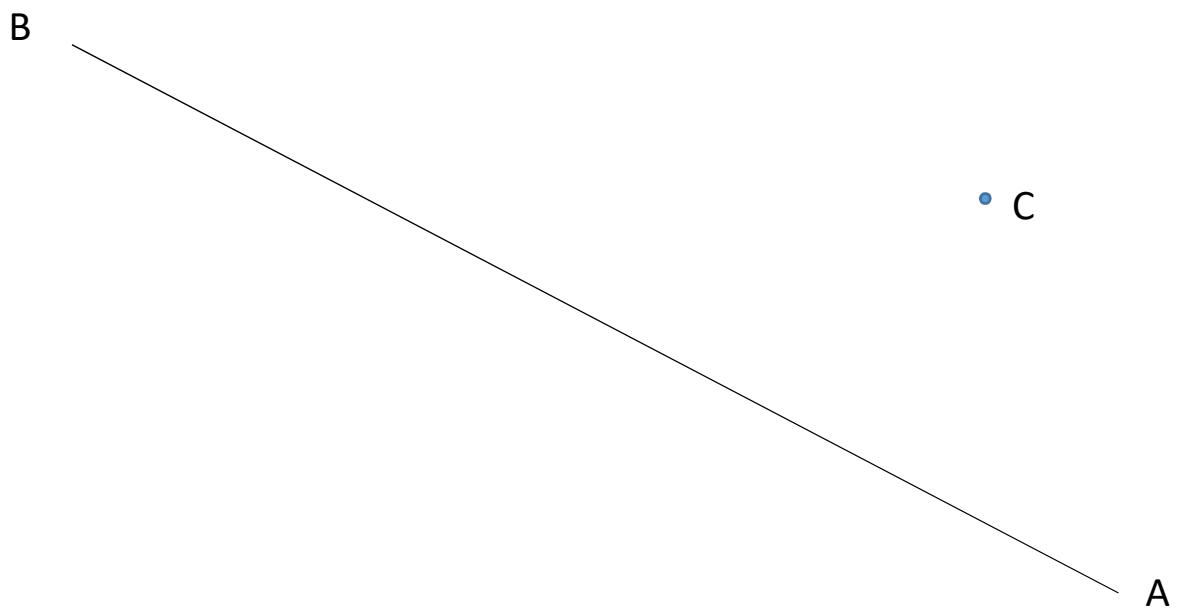
3. Construct the triangle ABC where

$$AB = 10\text{cm}$$

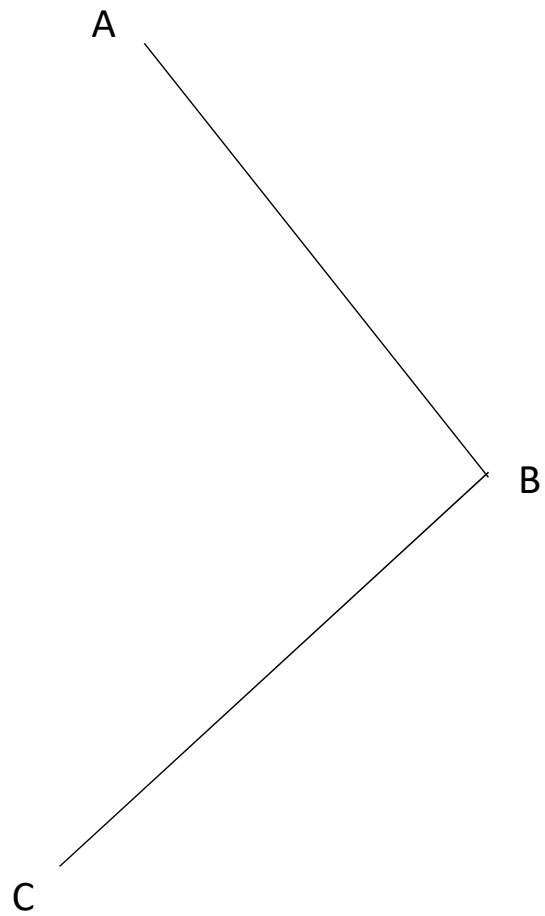
$$BC = 8\text{cm}$$

$$AC = 6\text{cm}$$

4. Construct the line that is perpendicular to AB and passes through the point C



5. Bisect the angle CBA



6 Construct the triangle where

(P)

$$AB = 7\text{cm}$$

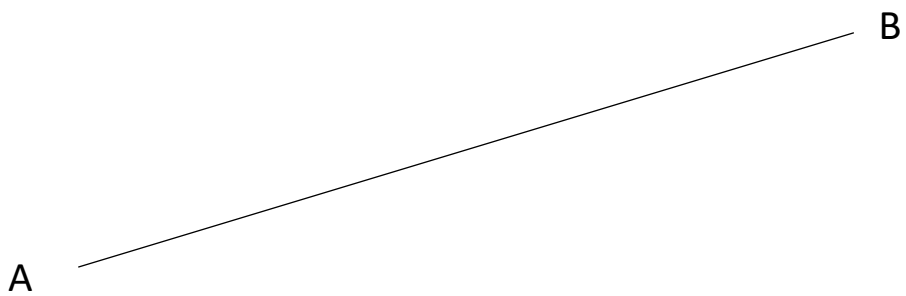
$$\angle ABC = 50^\circ$$

$$\angle CAB = 20^\circ$$

7. Construct the locus of points 4 cm away from A



8. Construct the locus of points 2 cm away from the line AB



9. Construct the triangle where

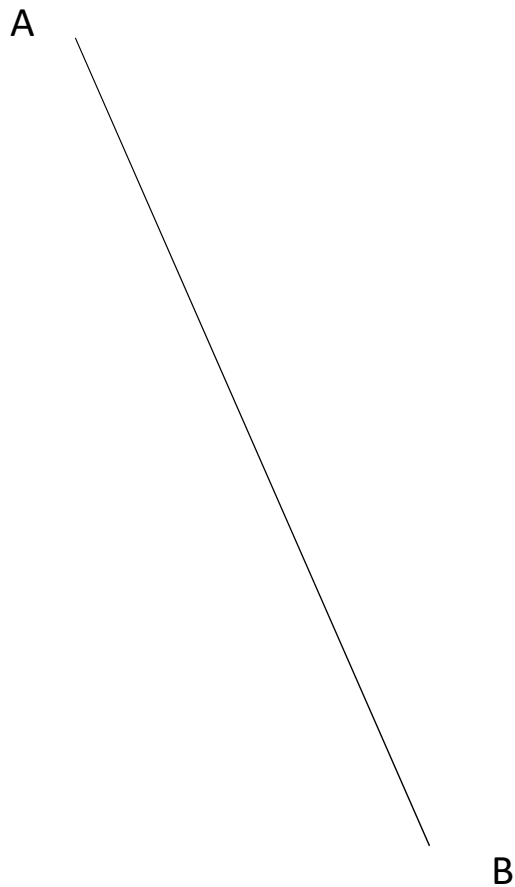
(P)

$AB = 7 \text{ cm}$

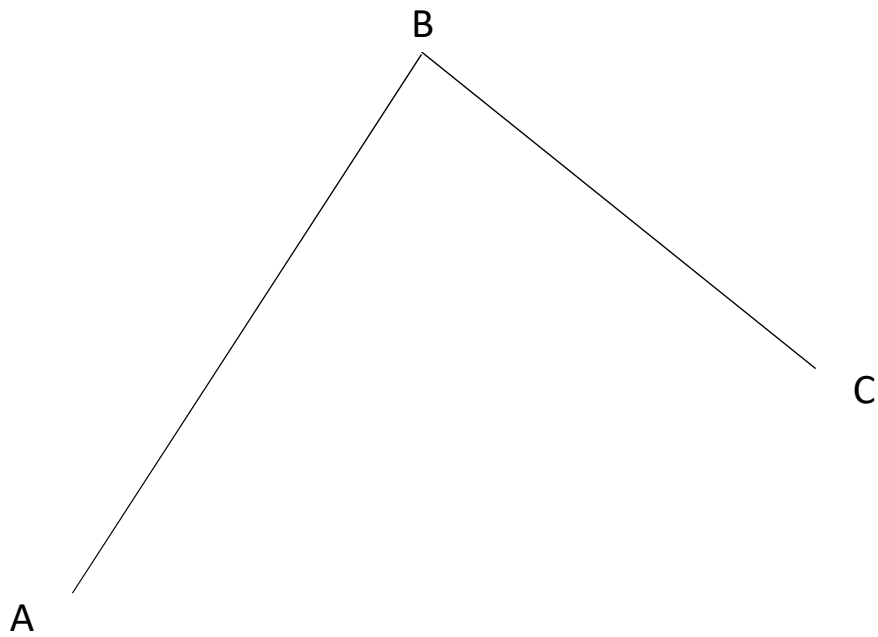
$BC = 8 \text{ cm}$

$\angle C = 43^\circ$

10. Construct the perpendicular bisector for the line AB



11. Construct the locus of points which is equidistant from AB and BC

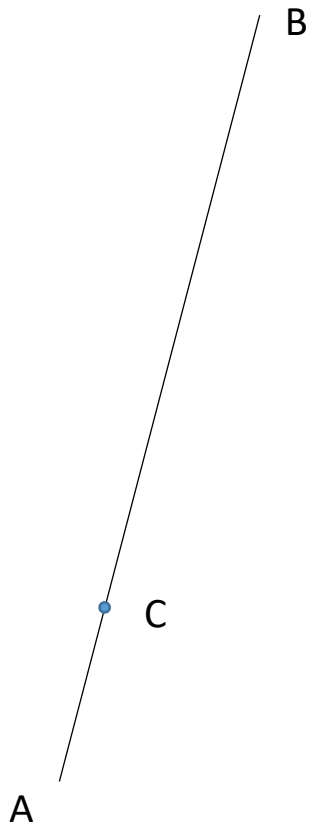


12. Construct the locus of points that is equidistant from B and C

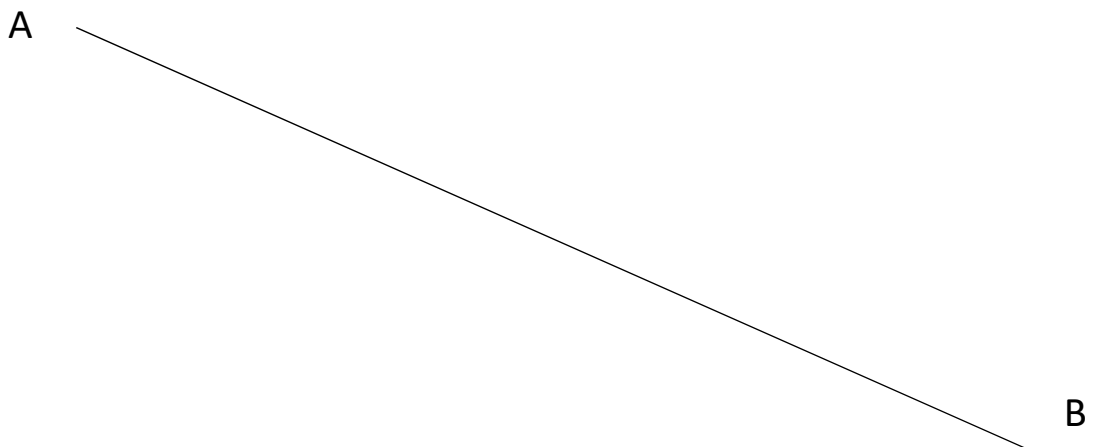




13. Construct the line that is perpendicular to AB and passes through the point C



14. Construct a line that is parallel to AB and 3 cm away



15. Construct the triangle where

(P)

$$\angle C = 90^\circ$$

$$AC = 7\text{cm}$$

$$BC = 4\text{cm}$$

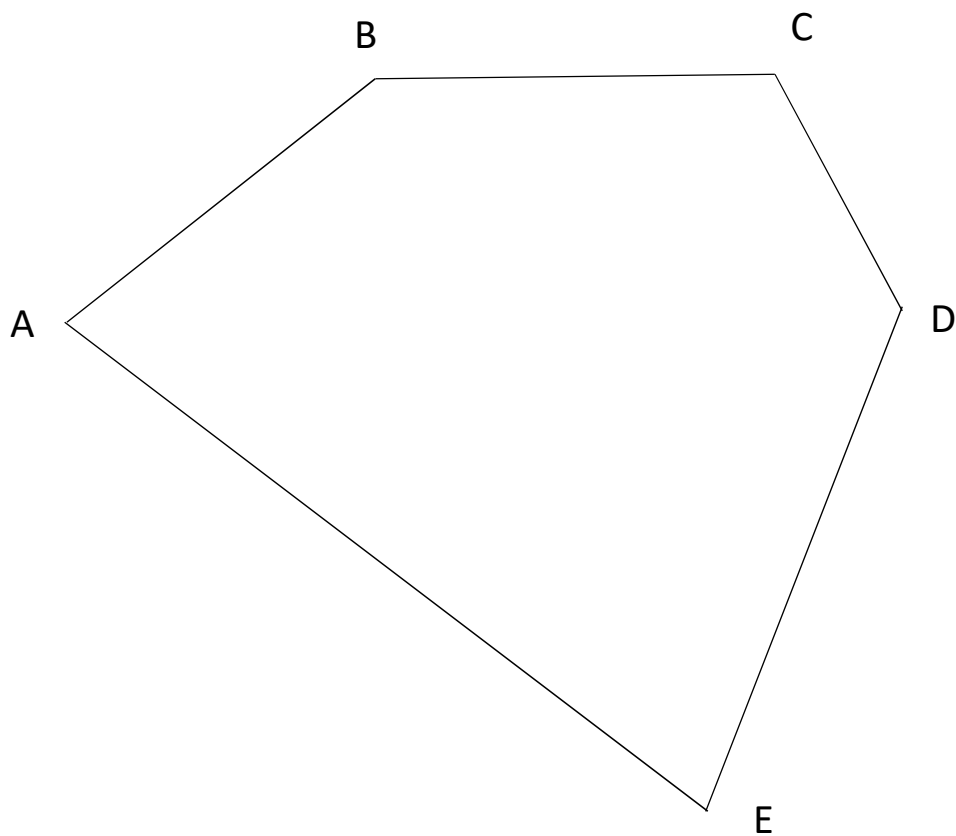
16. By constructing an equilateral triangle, create and label a  $60^\circ$  angle

17. Using the method in the previous question, construct and label a  $30^\circ$  angle

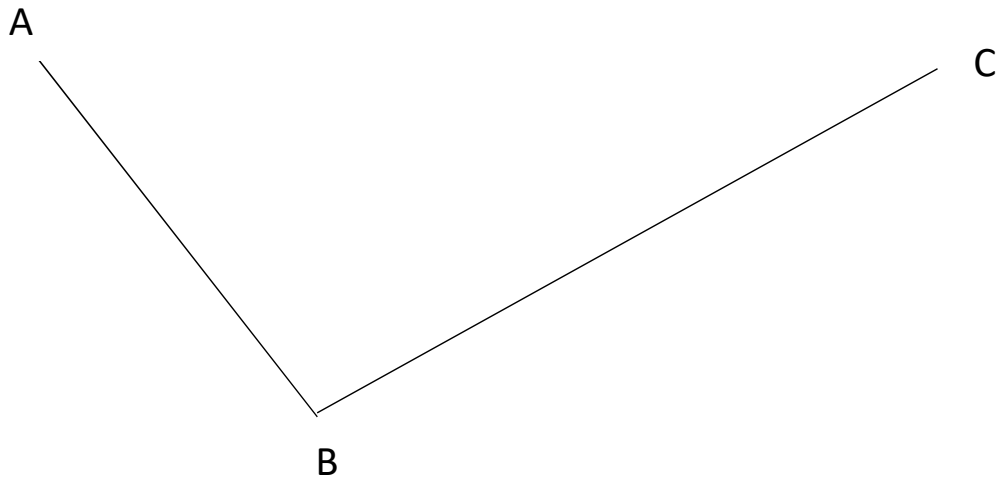
18. Construct and label a  $90^\circ$  angle

19. Construct and label a  $45^\circ$  angle

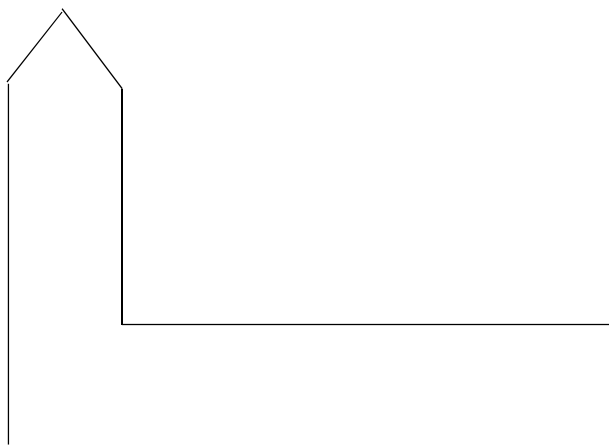
20. Bisect the angle DEA



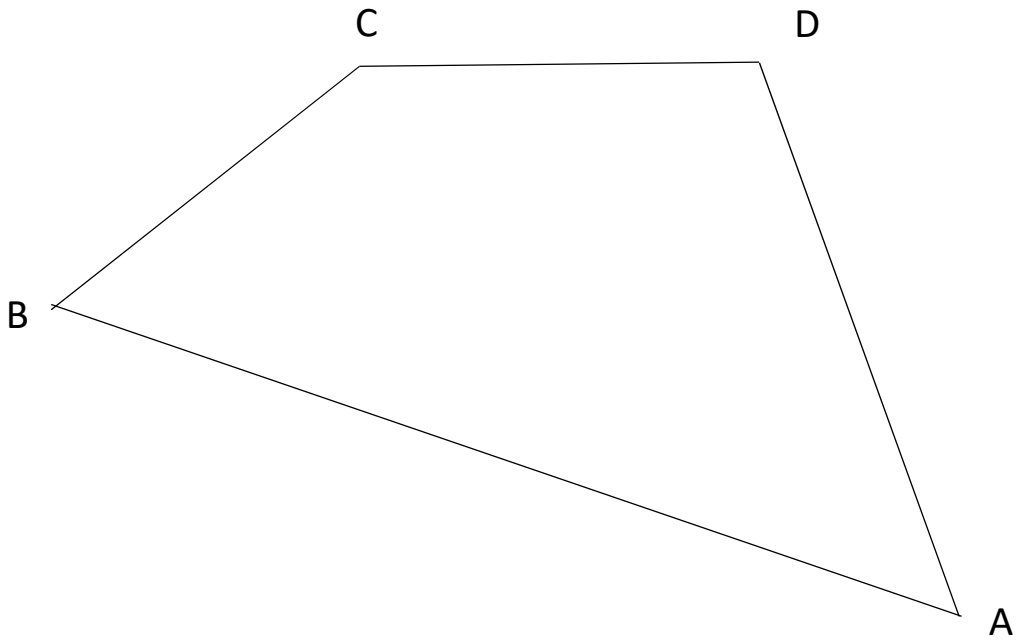
21. Create the locus of points 2cm away from the Line ABC



22. Create the locus of points 2cm away from the following shape



23. Create the locus of points that passes through D and is perpendicular to the line AB



24. Construct the triangle where (no protractor)

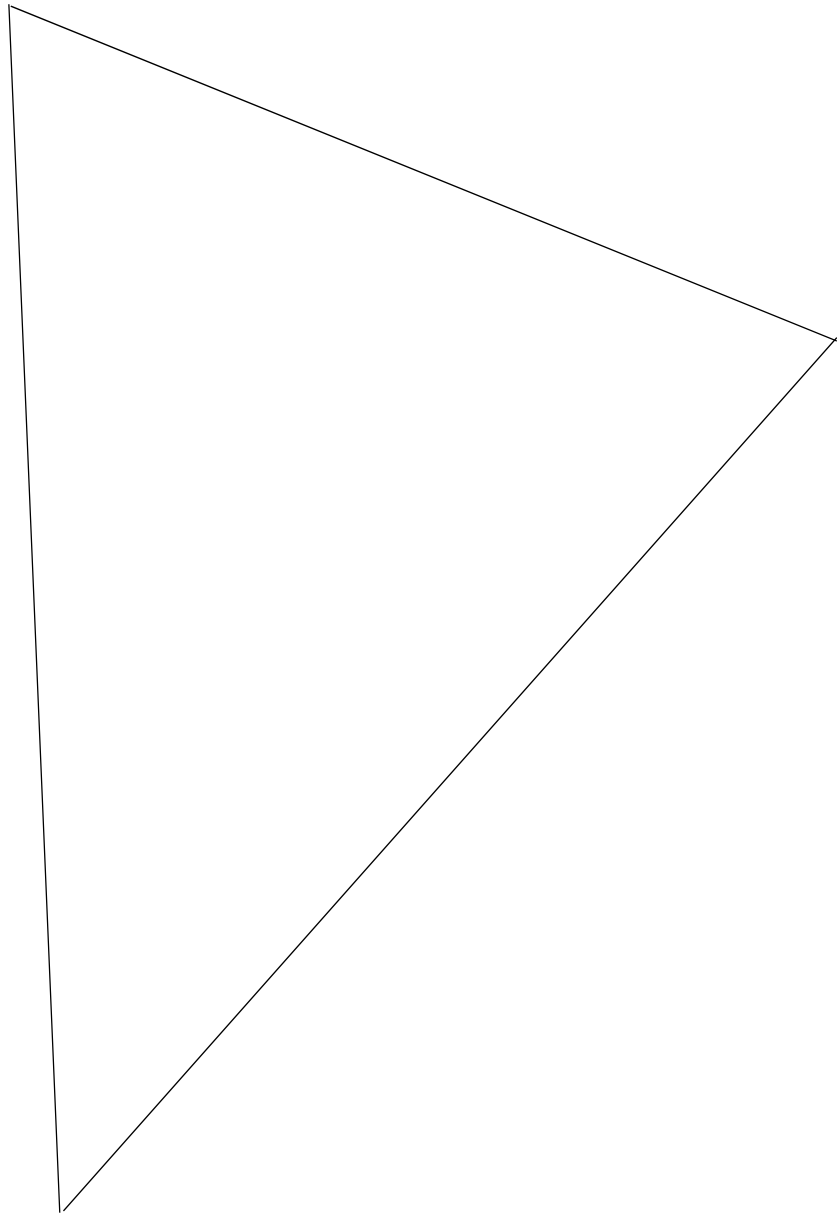
$$\angle ABC = 90^\circ$$

$$AC = 5\text{cm}$$

$$BC = 3\text{cm}$$

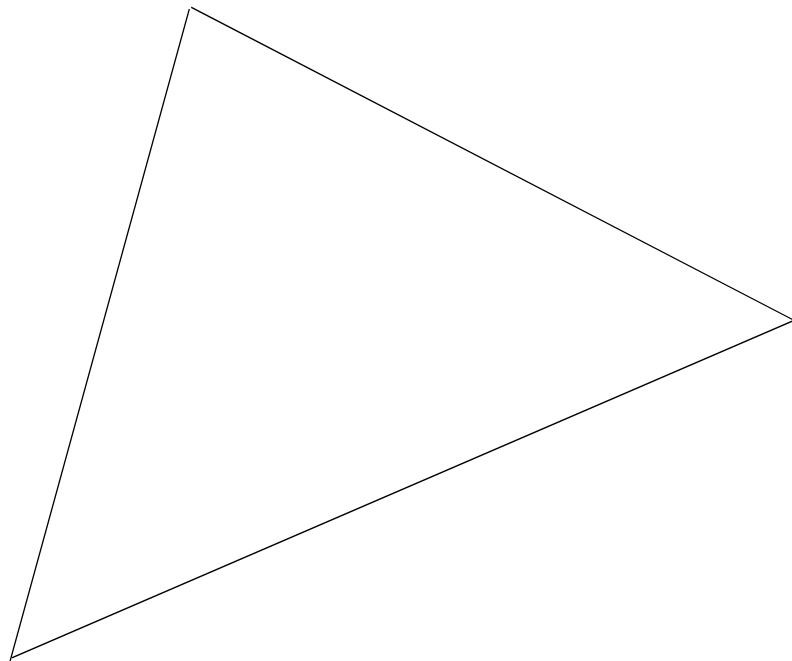
25. By constructing at least 2 angle bisectors, find the centre of a circle that touches each side of the triangle (the incircle).

Draw this circle.



26. By constructing at least 2 perpendicular bisectors, find the centre of a circle that touches each vertex of the triangle (the circumcircle).

Draw this circle.





27. Without using a protractor, construct a triangle where

$$AB = 10\text{cm}$$

$$\angle C = 30^\circ$$

$$\angle A = 45^\circ$$