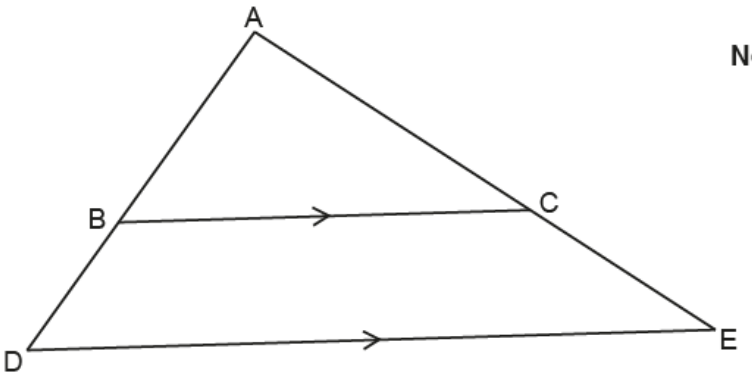
Basic Geometry – 2021/20 GCSE Mathematics Higher

1. Nov/2021/Paper_J560/04/No.11

The diagram shows triangles ABC and ADE.



Not to scale

B lies on AD and C lies on AE.
BC is parallel to DE.

Complete these statements to show that triangles ABC and ADE are similar.

Angle ABC = angle ADE because they are corresponding angles.

Angle ACB = angle ..... because .....

Angle BAC is .....

Triangles ABC and ADE are similar because .....

.....

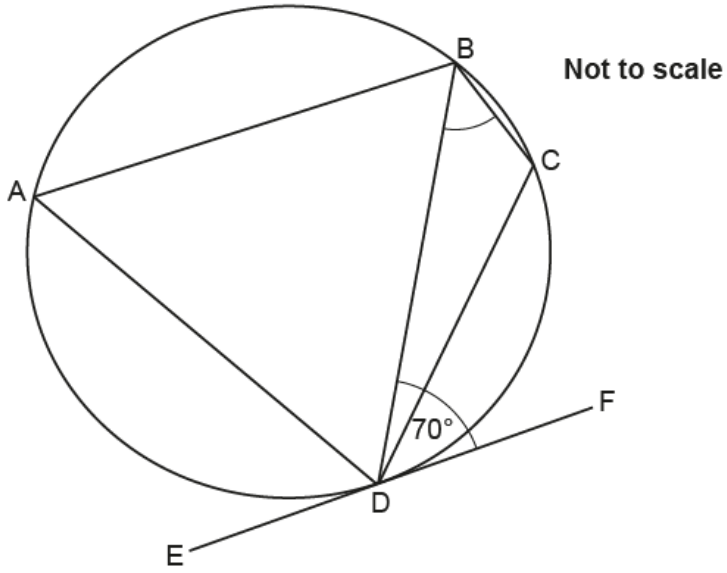
[3]

2. Nov/2021/Paper_J560/05/No.18

A, B, C and D are points on the circumference of a circle.

EF is the tangent to the circle at D.

Angle BDF = 70°.



The ratio angle BCD : angle CBD is 5 : 2.

Work out angle CBD.
You must show your working.

..... ° **[5]**

3. Nov/2021/Paper_J560/05/No.19

The point $(5, 7\sqrt{2})$ lies on the circumference of a circle, centre (0, 0).

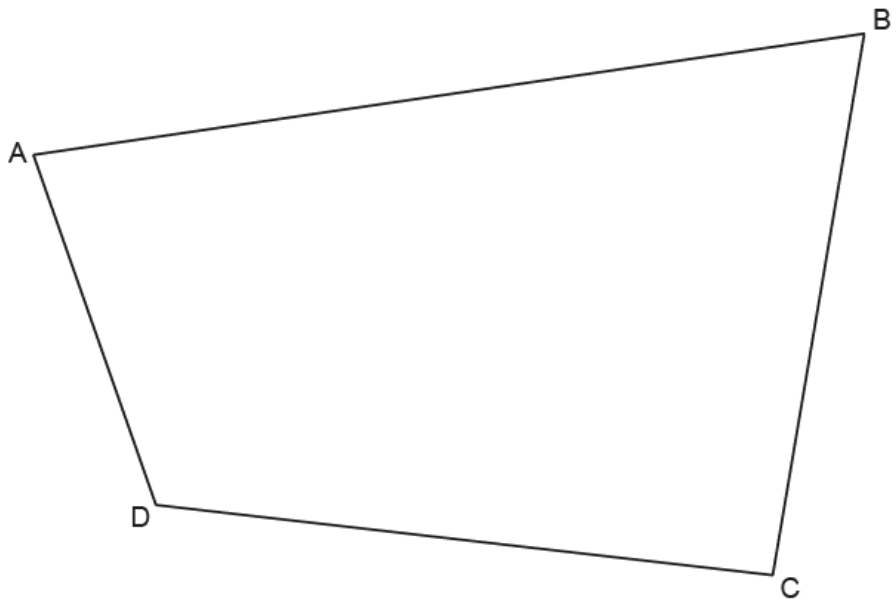
Find the equation of the circle.

..... **[4]**

4. Nov/2021/Paper_J560/06/No.7

The scale drawing represents a park, ABCD.

Scale: 1 cm represents 10 m



A straight path goes across the park from B.
The path is always the same distance from side AB and side BC.

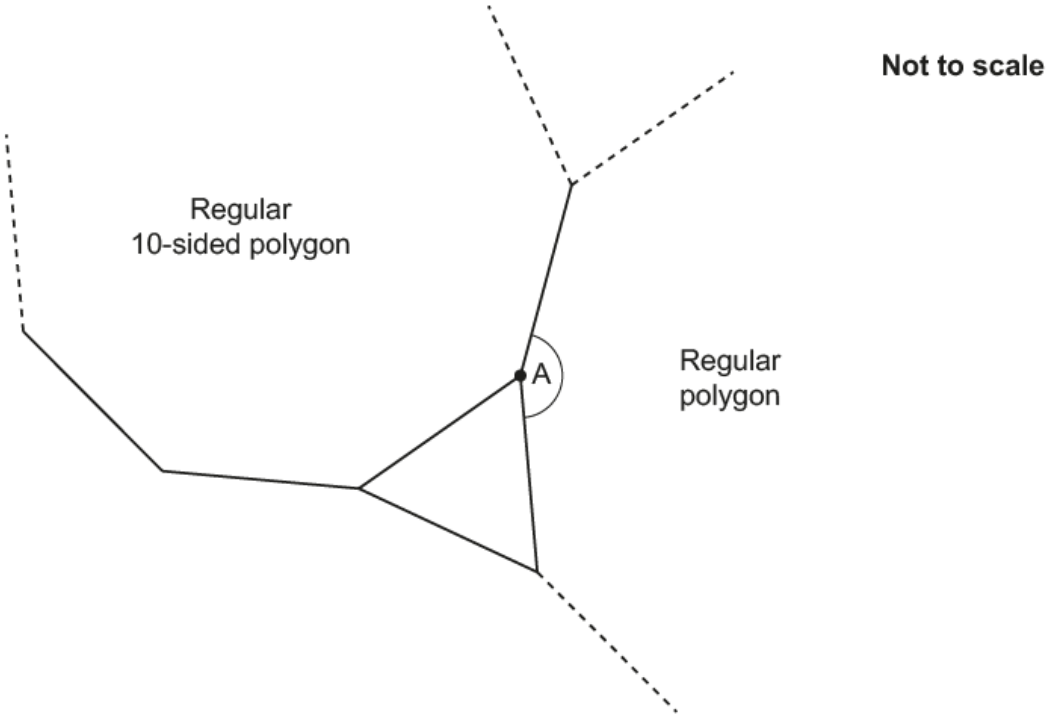
(a) Construct the route followed by the path.
Show all your construction lines. **[2]**

(b) A bench is to be placed on the path.
The bench must be no more than 50 m from C.

Construct the locus of the possible positions of the bench.
Indicate clearly on the diagram where the bench can be placed. **[3]**

5. Nov/2021/Paper_J560/06/No.10

An equilateral triangle, a regular 10-sided polygon and another regular polygon meet at a point.



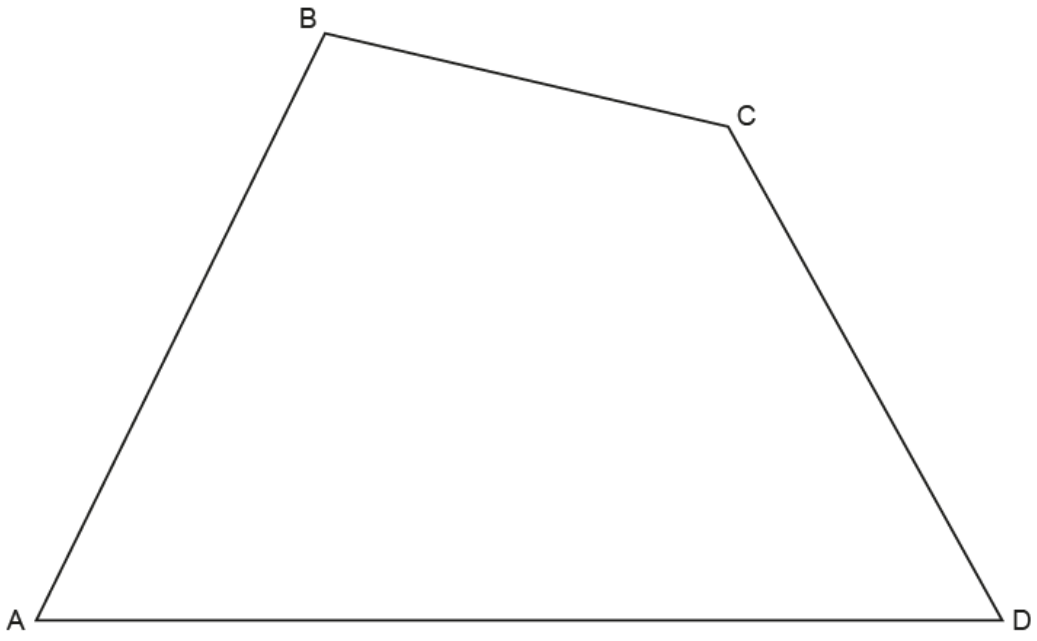
(a) Show that angle A is 156°. **[3]**

(b) Work out the number of sides of the other regular polygon.

(b) ..... **[2]**

6. Nov/2020/Paper_J560/04/No.5

ABCD is a quadrilateral.



(a) Construct the bisector of angle ABC.
Show all your construction lines. **[2]**

(b) Construct the perpendicular bisector of BC.
Show all your construction lines. **[2]**

(c) Shade the region which is

- nearer to BC than to AB

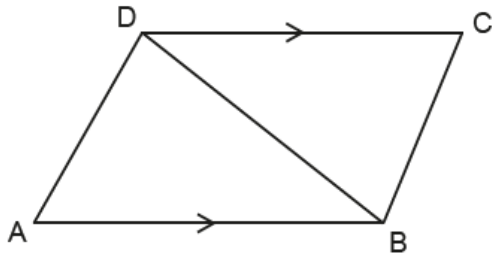
and

- nearer to B than to C.

[1]

7. Nov/2020/Paper_J560/05/No.9

In the diagram, AB and DC are parallel lines of equal length.



Not to scale

Prove that angle DAB = angle BCD.

.....

.....

.....

.....

..... **[4]**

8. Nov/2020/Paper_J560/06/No.5

(a) Work out the size of the exterior angle of a regular 12-sided polygon.

(a) ..... ° **[2]**

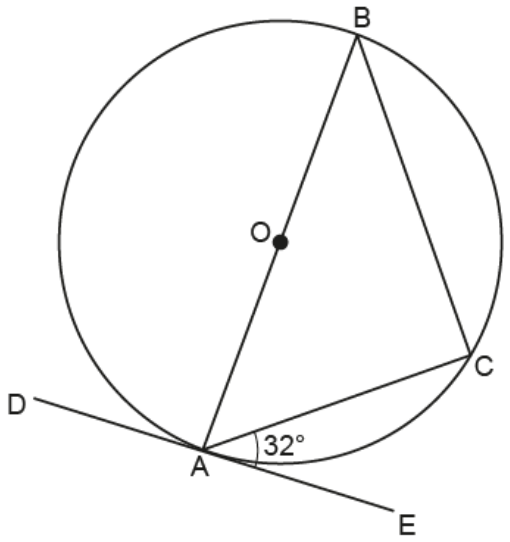
(b) Use your answer to part **(a)** to write down the size of the interior angle of a regular 12-sided polygon.

(b) ..... ° **[1]**

9. Nov/2020/Paper_J560/06/No.16

The diagram shows a circle, centre O.

Points A, B and C lie on the circumference of the circle.
Line AOB is a diameter.
Line DAE is a tangent to the circle.
Angle CAE = 32°.



Not to scale

(a) Give a reason why angle ACB is a right angle.

.....

..... **[1]**

(b) The radius of the circle is 8 cm.

Calculate length BC.

(b) ..... cm **[4]**