

IGCSE Maths 4MA1 Geometry Practice Exam

Pearson Edexcel International GCSE Mathematics A (4MA1), Higher tier · 18 questions · 50 marks

Name _____

Date _____

Score / 50

- Answer every question. Show your working: most marks are for method.
- Calculator allowed.
- Topics: Similarity; Circle Properties; Symmetry and Properties of Quadrilaterals; Congruent Triangles; Circles; Surface Area; Transformations; Arcs, Sectors and Segments; Volume and Surface Area; Angles 2; Polygons 2.
- The mark scheme is a separate free PDF: [igcsemathrevision.com/igcse-frontend/downloads/practice-exams/4ma1/igcse-maths-4ma1-geometry-practice-exam-mark-scheme.pdf](https://www.igcsemathrevision.com/igcse-frontend/downloads/practice-exams/4ma1/igcse-maths-4ma1-geometry-practice-exam-mark-scheme.pdf)

1. Two similar shapes have a linear scale factor of 5. Write down the area scale factor. [1]
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2. Two chords AB and CD of a circle intersect at a point P inside the circle. AP = 4 cm, PB = 9 cm and CP = 6 cm. Find PD. [2]
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3. ABCD is a kite with AB = AD and CB = CD. Angle BAD = 110° and angle BCD = 50° . Work out the size of angle ABC. [2]
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4. Triangle ABC has AB = 6 cm, angle A = 50° and angle B = 70° . Triangle DEF has DE = 6 cm, angle D = 50° and angle F = 60° . Show that the triangles are congruent. [2]
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5. A circle has an area of 80 cm^2 . Work out its radius. Give your answer to 3 significant figures. [2]
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6. The curved surface area of a cylinder is $150\pi \text{ cm}^2$. The radius is 5 cm. Find the height of the cylinder. [2]
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7. The point (4, 5) is enlarged by scale factor 2, centre (1, 2). Find the coordinates of its image. [2]
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8. Triangles A and B are similar. A side of 6 cm in A corresponds to a side of 9 cm in B. The area of A is 20 cm^2 . Work out the area of B. [2]
9. A sector of a circle of radius 9 cm has area 50 cm^2 . Find the angle of the sector. Give your answer correct to 1 decimal place. [3]
10. A pyramid has a square base and a vertical height of 9 cm. The volume of the pyramid is 300 cm^3 . Find the length of one side of the base. [3]
11. Triangle A has vertices (1, 2), (3, 2) and (3, 5). Triangle B has vertices (-2, 1), (-2, 3) and (-5, 3). Describe fully the single transformation that maps triangle A onto triangle B. [3]
12. AB and CD are parallel lines, with A and C on the left. A straight line crosses AB at P and CD at Q, with Q below and to the right of P. Angle $BPQ = (5x - 12)^\circ$ and angle $PQC = (3x + 24)^\circ$. (a) Find the value of x . (b) Work out the size of angle APQ. Give reasons for your answers. [4]
13. The interior angles of a heptagon are $2x^\circ$, $2x^\circ$, $(x + 40)^\circ$, $(x + 40)^\circ$, 150° , 130° and 120° . (a) Find the value of x . (b) Write down the size of the largest angle of the heptagon. [4]
14. Chords AB and CD of a circle intersect at P inside the circle. AP = 5 cm, PB = 8 cm and CD = 14 cm. CP is shorter than PD. Find CP. [3]



15. ABCD is a parallelogram. Prove that triangle ABC is congruent to triangle CDA. [3]
16. A bicycle wheel has diameter 65 cm. How many complete turns does the wheel make when the bicycle travels 1 km? [3]
17. AB is a chord of a circle with centre O and radius 12 cm. Angle AOB = 80° . Find the area of the minor segment cut off by the chord AB. Give your answer correct to 3 significant figures. [4]
18. PQ and RS are parallel lines, with PQ above RS and P, R on the left. B is a point on PQ and D is a point on RS. C is a point between the two lines, to the right of both B and D. Angle $QBC = (2y + 10)^\circ$, angle $SDC = (3y - 5)^\circ$ and angle $BCD = 110^\circ$ (the angle at C between CB and CD, not the reflex angle). (a) Find the value of y . (b) Work out the size of angle PBC. Give reasons for your answers. [5]

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