# EXAM-STYLE CLASS TEST

| MARKS | DURATION | QUESTIONS |
|---|---|---|
| 31 | 50 minutes | 3 |

Name: _____ Class: _____

Date: _____

MARK ____ / 31

## INSTRUCTIONS AND INFORMATION

1. Answer **ALL** the questions in this question paper.
2. Answer QUESTION 1 by **circling** the letter (A–D) in the answer grid at the end of that section.
3. Show **ALL** calculations clearly.
4. Show all units where applicable.
5. Number the answers correctly according to the numbering system used in this question paper.
6. A non-programmable calculator may be used, unless stated otherwise.
7. Write neatly and legibly.

## QUESTION 1 [10 MARKS]

Four options are given as possible answers to the following questions. Choose the correct answer and circle the letter (A–D) in the grid at the end of this section. If you want to change your choice, put a cross through the wrong letter and circle your new choice.

**1.1** The angle at the CENTRE of a circle is ... the angle at the circumference on the same arc. (1)

**A)** equal to **B)** half
**C)** twice **D)** supplementary to

**1.2** The angle in a SEMICIRCLE is ... (1)

**A)** 60° **B)** 90°
**C)** 180° **D)** 45°

**1.3** The OPPOSITE angles of a cyclic quadrilateral are ... (1)

**A)** complementary **B)** supplementary
**C)** both 90° **D)** equal

**1.4** In cyclic quadrilateral ABCD, $\hat{A} = 105°$. Then $\hat{C} = ...$ (1)

**A)** 75° **B)** 105°
**C)** 255° **D)** 15°

**1.5** A line drawn from the centre PERPENDICULAR to a chord ... (1)

**A)** bisects the angle that chord subtends at the circumference **B)** is a tangent to the circle
**C)** bisects the chord **D)** is equal in length to the radius

**1.6** A tangent to a circle is perpendicular to ... (1)

**A)** the radius at the point of contact
**B)** the chord nearest to it
**C)** any chord of the circle
**D)** every diameter

**1.7** Angles subtended by the same chord IN THE SAME SEGMENT are ... (1)

**A)** complementary
**B)** supplementary
**C)** in the ratio $2:1$
**D)** equal

**1.8** Two tangents drawn to a circle from the same external point are ... (1)

**A)** equal in length
**B)** parallel
**C)** perpendicular to each other
**D)** equal in length to the radius

**1.9** The EXTERIOR angle of a cyclic quadrilateral equals ... (1)

**A)** $90°$
**B)** twice the interior opposite angle
**C)** the adjacent interior angle
**D)** the interior opposite angle

**1.10** The tan-chord theorem says the angle between a tangent and a chord equals ... (1)

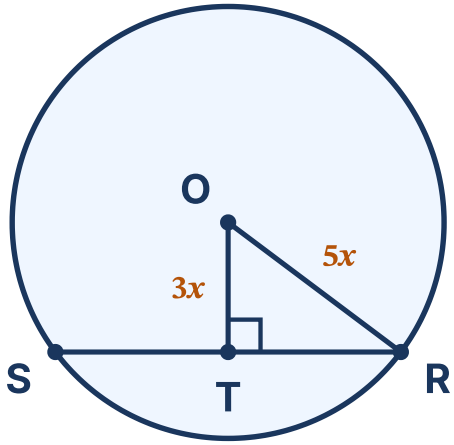
**A)** $90°$
**B)** the angle in the alternate segment
**C)** the angle in the same segment as itself
**D)** the angle at the centre

**ANSWER GRID — CIRCLE YOUR ANSWERS FOR QUESTION 1**

| | | | | |
|---|---|---|---|---|
| **1.1** | A | B | C | D |
| **1.2** | A | B | C | D |
| **1.3** | A | B | C | D |
| **1.4** | A | B | C | D |
| **1.5** | A | B | C | D |
| **1.6** | A | B | C | D |
| **1.7** | A | B | C | D |
| **1.8** | A | B | C | D |
| **1.9** | A | B | C | D |
| **1.10** | A | B | C | D |

## QUESTION 2 [9 MARKS]

In the diagram, O is the centre of the circle and SR is a chord with SR $= 40$ cm. OT $\perp$ SR, with T on SR. It is given that OT $= 3x$ and the radius OR $= 5x$.




SR $= 40$ cm

not drawn to scale

**2.1** Write down the length of TR, and give a reason. (2)

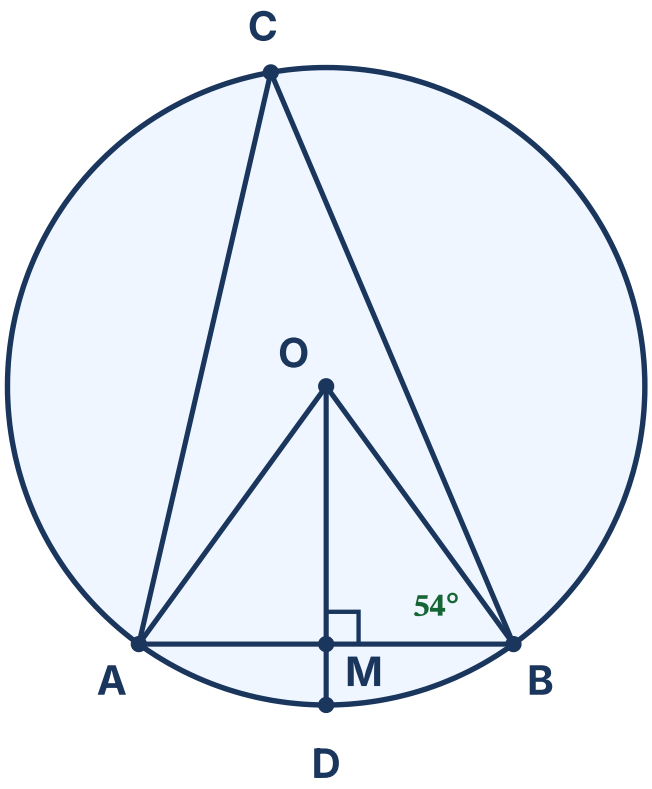
| STATEMENT | REASON |
|---|---|
| | |
| | |

**2.2** Determine the value of $x$. (5)

**2.3** Hence write down the length of the radius and the distance from O to the chord. (2)

## QUESTION 3 [12 MARKS]

In the diagram below, O is the centre of a circle and A, B, C and D lie on the circumference. OD ⊥ AB, with OD cutting AB at M. C lies on the major arc AB and $O\hat{B}A = 54°$.




not drawn to scale

**3.1** Determine, with reasons, the size of $O\hat{A}B$. (3)

| STATEMENT | REASON |
|---|---|
| | |
| | |
| | |

**3.2** Determine, with reasons, the size of $A\hat{O}B$. (3)

| STATEMENT | REASON |
|---|---|
| | |
| | |
| | |

**3.3** Hence determine, with a reason, the size of $\hat{C}$. **(3)**

| STATEMENT | REASON |
|---|---|
| | |
| | |
| | |

**3.4** Prove that OD bisects AB. **(3)**

| STATEMENT | REASON |
|---|---|
| | |
| | |
| | |

**TOTAL: 31 marks**

*This question paper consists of 3 questions.*

© Danemathics — free to print and share for classroom use.