20 Mensuration - 2D Figures

Objectives:

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| Calculate the perimeter and area of quadrilaterals, triangles and circles using formulae |
| Calculate area and perimeter of complex rectilinear and circular closed figures |

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| Content | Teacher's Activity | Student's Activity | Assignments | Class |
| Introduction  IGCSE: Chapter 7  NIOS: Chapter 20 | * + Ask students for definitions of the terms: perimeter and area of closed figures   + Discuss examples where perimeter and area are required in daily life | * + Explain the meaning of perimeter and area, giving examples of their use in our lives |  | 1 |
| Perimeter and Area of quadrilaterals and triangles  IGCSE: 7.1  NIOS: 20.1 | * + Revisit the perimeter and area formulae for common quadrilaterals: square, rectangle, parallelogram, trapezium, rhombus   + Revisit the perimeter and area formulae for triangles   + Work out examples to calculate area and perimeter for quadrilaterals and triangles | * + Calculate perimeter and area for common quadrilaterals and triangles using formulae | * + Ex 7.1 (1, 3, 5, 7, 8)   + Ex 20.1 | 1, 2 |
| Heron's Formula  NIOS: 20.2 | * + Work through the process of calculating the area of a triangle, given its three sides   + Provide a simpler alternative to the above using Heron's formula to calculate the area of a triangle given the lengths of its sides   + Work out examples to calculate area of a triangle using heron's Formula | * + Calculate the area of a triangle given the length of its sides | * + Textbook examples   + Ex 20.2 | 3 |
| Perimeter and Area of complex rectilinear closed figures  IGCSE: 7.1  NIOS: 20.3 | * + Explain how complex rectilinear closed figures (closed figures bound by straight lines) can be broken down into simple, familiar shapes   + Work out examples to compute the perimeter and area of complex rectilinear figures by finding the perimeter and area of the simpler figures that make up the complex figure | * + Calculate the perimeter and area of complex rectilinear figures by breaking them into simple, familiar shapes | * + Ex 7.1 (2, 4, 6)   + 20.3 textbook examples   + Ex 20.3 | 4 |
| Circumference and Area of Circles  IGCSE: 7.1  NIOS: 20.4 | * + Revisit the formula for circumference and area of a circle   + Briefly explain the history of π. Point out that for practical purposes, we will use an approximate value of this irrational number (22/7 or 3.142)   + Through examples, show how the circumference and area of calculated for circles as well as combination figures including circles, quadrilaterals and triangles | * + Calculate the circumference and area of circular figures   + Calculate the circumference and area of complex figures including circles, quadrilaterals and triangles | * + Ex 7.2   + Example 20.13, 20.14   + Ex 20.4 | 5, 6 |
| Arcs and Sectors | * + Revisit the definitions of sector, arc, central angle, minor and major sectors   + Derive the formula for arc length, perimeter of a sector and area of a sector   + Work out examples to compute the perimeter and area of sectors as well as complex figures including sectors and other shapes | * + Calculate the arc length, perimeter and area of a sector   + Calculate the perimeter and area of complex figures including a combination of rectilinear and circular shapes | * + Ex 7.3   + Example 20.18   + Ex 20.5, 20.6 | 7, 8 |
| Catch-up class | Clear doubts |  |  | 9, 10 |
| Test |  |  |  | 11, 12 |