



LEARNER'S NAME:

CLASS:

**NATIONAL  
SENIOR CERTIFICATE**

**GRADE 11**

**NOVEMBER 2023**

**TECHNICAL MATHEMATICS P2  
SPECIAL ANSWER BOOK  
(DEAF LEARNERS)**

QUESTION	MARKS			HOD (Level 1 mod.)			DISTRICT (Level 2 mod.)			PROVINCIAL (Level 3 mod.)		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
TOTAL												

\_\_\_\_\_  
This special answer book has 23 pages.  
\_\_\_\_\_

**FOLLOW THESE INSTRUCTIONS CAREFULLY**

1. **Answer** ALL questions in the **spaces given**.
2. **No pages** may be **torn**<sub>(taken)</sub> from this ANSWER BOOK.
3. **Answers** must be **written** in **black/blue ink** as **clearly** as possible.  
**Do not write** in the **margins**.
4. **Show** the **questions** you have **answered** by **drawing** a **circle** around the **relevant numbers** on the **front cover** of the ANSWER BOOK where **marks** are to be **recorded**.
5. **Draw** a **line** through any **work/rough work** that must **not** be **marked**.
6. In the **event** that you use the **additional**<sub>(extra)</sub> **space given**:
  - 6.1 **Write** down the **number** of the **question**
  - 6.2 **Leave** a **line** and **rule off** after **your answer**

## QUESTION 1

	Solution	Marks
	<p>A Cartesian coordinate system with x and y axes. The origin is labeled O. A triangle PQR is plotted. Point Q is at <math>(-1; 2)</math>. Point P is at <math>(2; 6)</math>. Point R is at <math>(6; k)</math>. A right-angle symbol is shown at vertex P. The angle <math>\theta</math> is indicated between the positive x-axis and the line segment PR.</p>	
1.1	<div></div> <div></div> <div></div> <div></div>	(1)
1.2	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	(3)
1.3	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	(3)

	Solution	Marks
1.4		(3)
1.5		(4)
1.6		(4)
1.7		(3)
1.8		(5)
		[26]

**QUESTION 2**

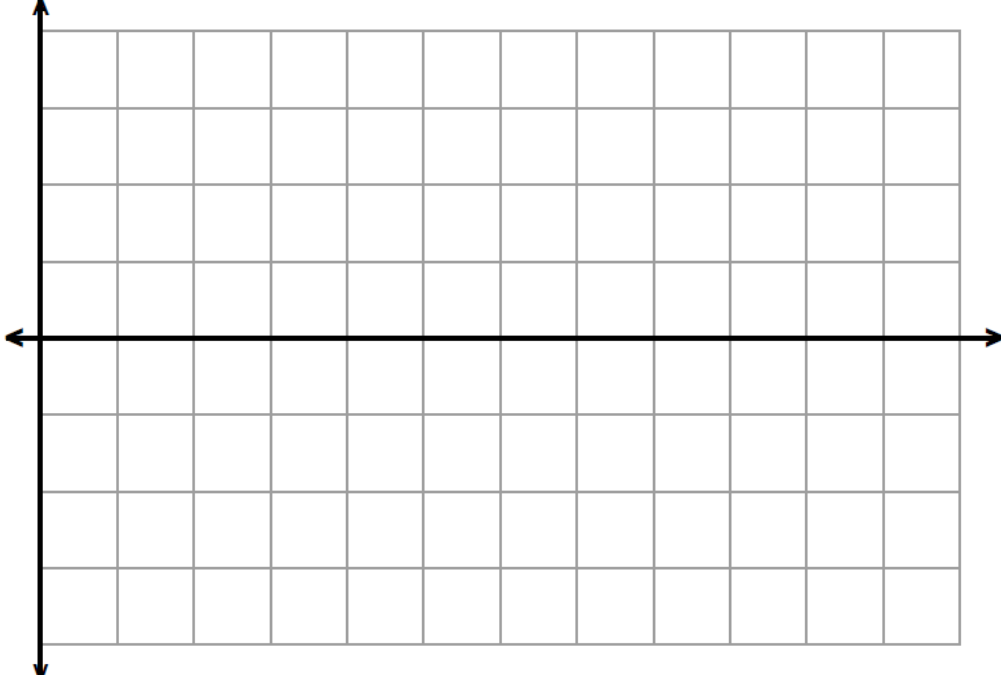
	<b>Solution</b>	<b>Marks</b>
2.1.1		(2)
2.1.2		(3)
2.2.1		(4)
2.2.2		(2)

	Solution	Marks
2.3		
		(4)
		[15]

## QUESTION 3

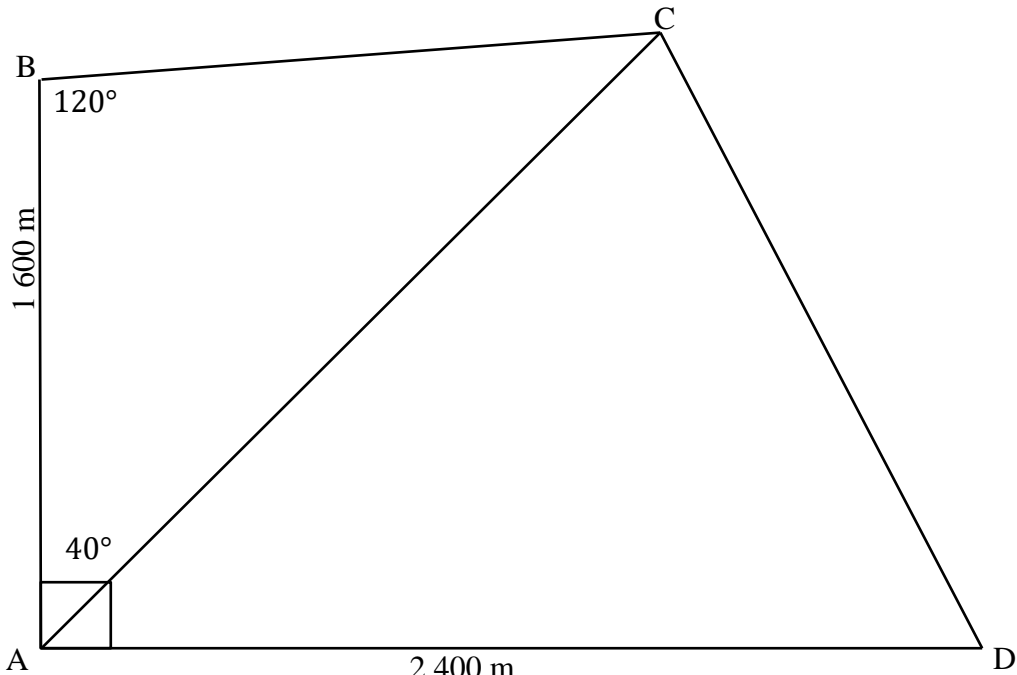
	Solution	Marks
3.1	$\frac{\cos(360^\circ - \theta) \cdot \frac{1}{\cot(180^\circ + \theta)} \cdot \tan(360^\circ + \theta)}{\cos(180^\circ + \theta) \cdot \tan(180^\circ - \theta)}$	(6)
3.2	$\left( \tan x + \frac{1}{\cos x} \right)^2 = \frac{1 + \sin x}{1 - \sin x}$	(4)
		[10]

**QUESTION 4**

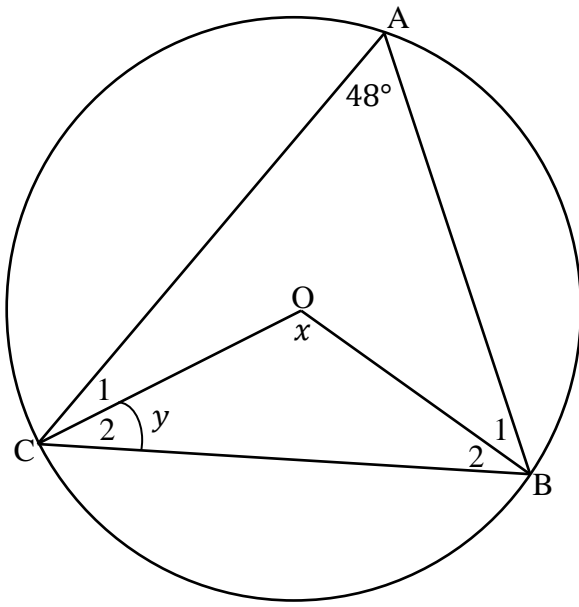
	<b>Solution</b>	<b>Marks</b>
4.1		(7)
4.2		(2)
4.3		(1)
4.4		(2)
		<b>[12]</b>



QUESTION 5

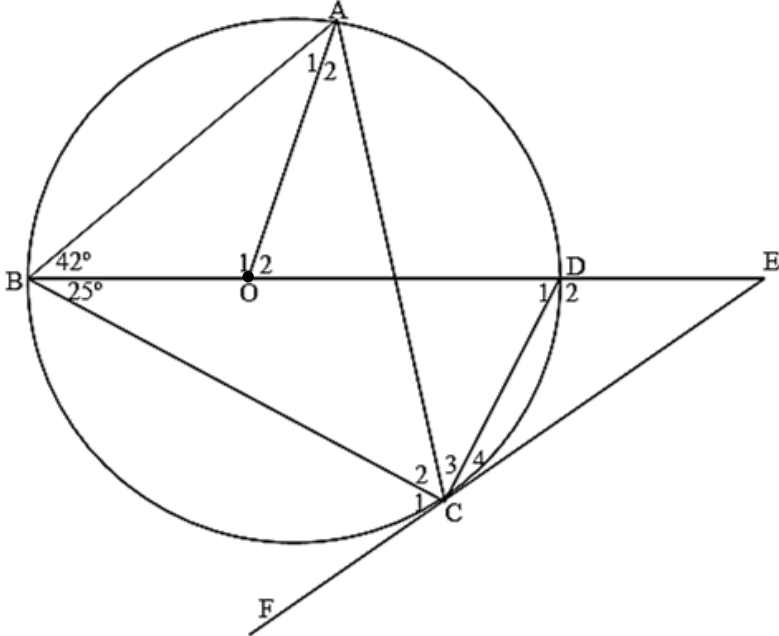
		
5.1	<div></div> <div></div> <div></div> <div></div> <div></div>	(2)
5.2	<div></div> <div></div> <div></div> <div></div> <div></div>	(3)
5.3	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	(6)
		<b>[11]</b>

## QUESTION 6

	Solution	Marks
6.1		(1)
6.2		
6.2.1		(2)
6.2.2		(2)
6.3		(1)

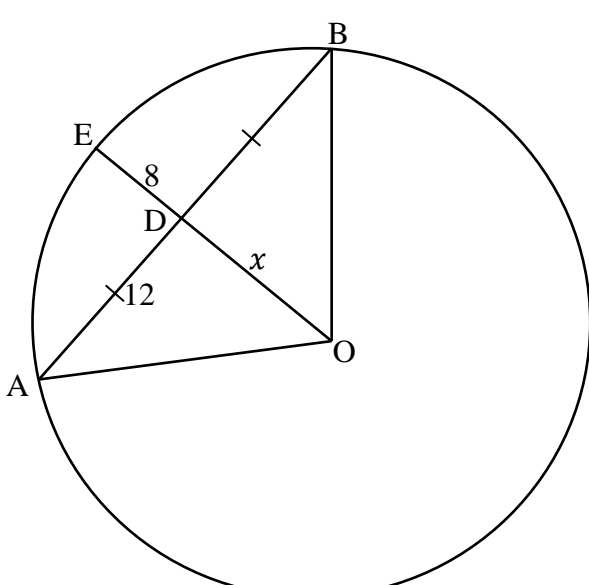
	Solution	Marks
6.4		
6.4.1		
		(2)
6.4.2		
		(2)
6.4.3		
		(2)
		[12]

## QUESTION 7

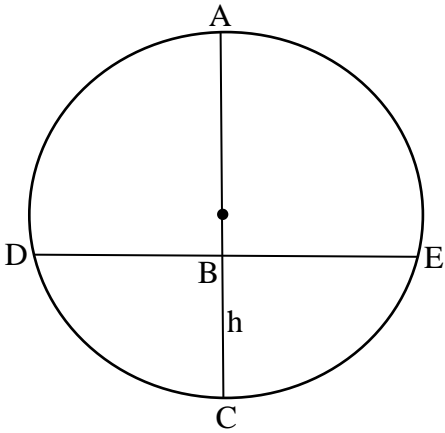
	Solution	Marks
7.1		(1)
7.2		(2)
7.2.1		
		(2)
7.2.2		(2)
7.2.3		(4)
7.3		(1)

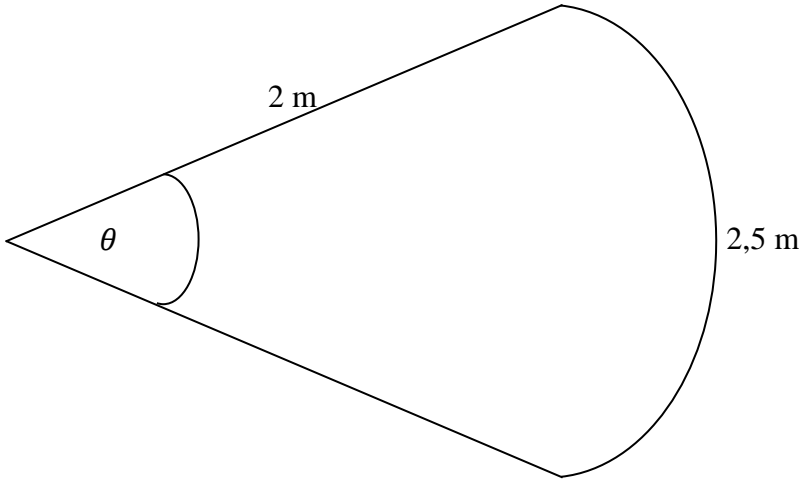
	Solution	Marks
7.4		
7.4.1		(4)
7.4.2		(2)
7.4.3		(4)
		[20]

## QUESTION 8

	Solution	Marks
8.1		(1)
8.2		(1)
8.2.1		
8.2.2		(3)
8.2.3		(4)
8.2.4		(1)
		[10]

## QUESTION 9

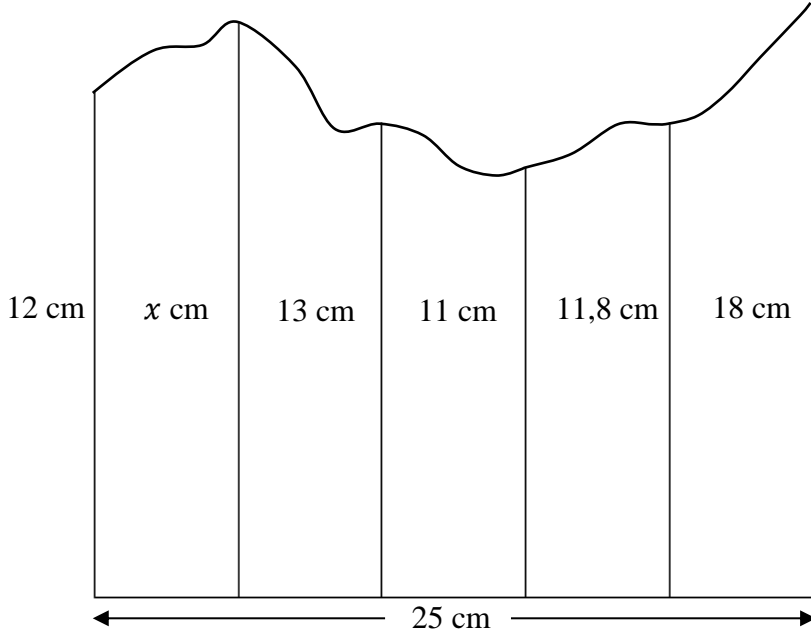
	Solution	Marks
9.1		(3)
9.2		(4)
9.3		(6)

	Solution	Marks
9.4		
9.4.1		(3)
9.4.2		(3)
9.4.3		(5)



[illegible]

## QUESTION 10

	Solution	Marks
		
	<div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div>	
	<b>TOTAL:</b>	(5) <b>150</b>

	Additional Space	Marks

	Additional Space	Marks

	Additional Space	Marks

	Additional Space	Marks

	Additional Space	Marks