

S.4 Mathematics Chapter Test
Chapter Test 6: Chapter 10 – 11

Mark:

/44

Parent Signature:

S.4 _____

Full Marks: 44 marks

Name: _____ ()

Time Allowed: 45 mins.

- Instructions :
1. Marks will be deducted when steps are missing or unclear.
 2. Put ALL the answers in the spaces provided.

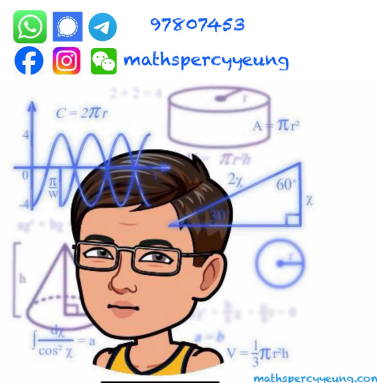
Section A: Short Questions (5 marks)

1	2	3	4	5

1. If $180^\circ < x < y < 270^\circ$, which of the following must be true?

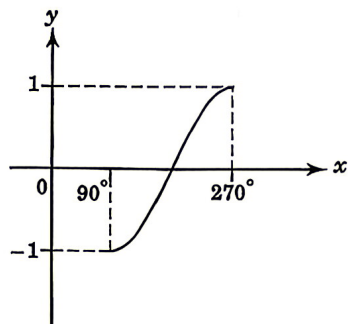
- $\sin x > \sin y$
- $\cos x > \cos y$
- $\tan x < \tan y$

- I and II only
- I and III only
- II and III only
- I, II and III

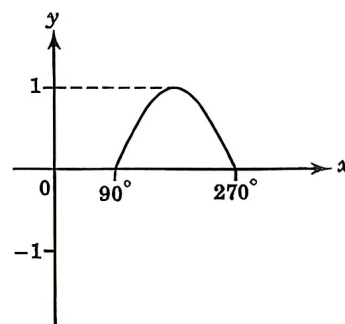


2. Which of the following may represent the graph of $y = \cos x$ for $90^\circ < x < 270^\circ$?

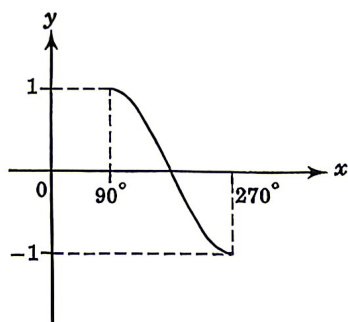
A.



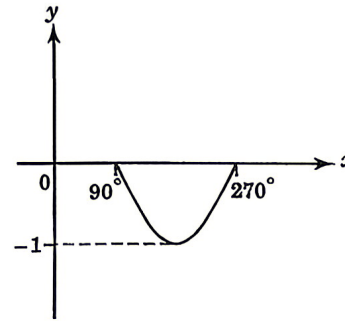
B.



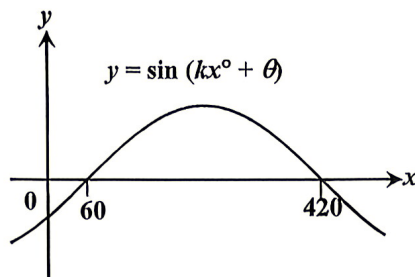
C.



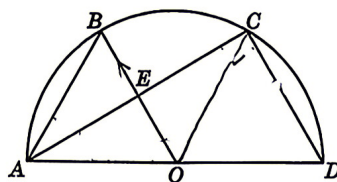
D.



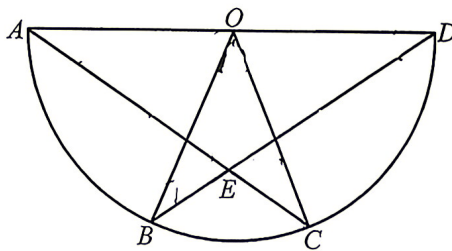
3. Let k be a positive constant and $-180^\circ < \theta < 180^\circ$. If the figure shows the graph of $y = \sin(kx^\circ + \theta)$, then



- A. $k = \frac{1}{2}$ and $\theta = -30^\circ$.
 B. $k = \frac{1}{2}$ and $\theta = 30^\circ$.
 C. $k = 2$ and $\theta = -30^\circ$.
 D. $k = 2$ and $\theta = 30^\circ$.
4. In the figure, O is the centre of the semi-circle $ABCD$. AC and OB intersect at the point E . $OB \parallel DC$ and $\angle AOE = 56^\circ$. Find $\angle BAE$.



- A. 28°
 B. 34°
 C. 56°
 D. 62°
5. In the figure, O is the centre of the semi-circle $ABCD$. AC and BD intersect at the point E . If $AE = DE$ and $\angle BDA = 34^\circ$, then $\angle BOC =$



- A. 40° .
 B. 44° .
 C. 48° .
 D. 50° .

Section B: Short Questions (8 marks)

Put ALL your answers in the spaces provided. Working steps are not required.

6. For $0^\circ \leq \theta \leq 360^\circ$, how many distinct roots does the equation $\cos \theta (\tan \theta - 1) = 0$ have?

6. _____

7. Find the maximum and minimum values of the function $y = \frac{10}{6 - \sin^2 x}$.

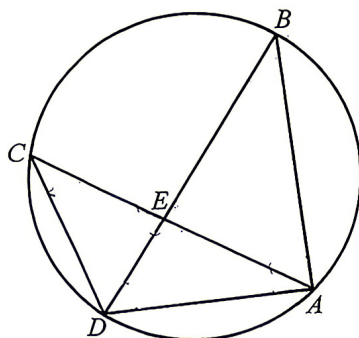
7(a). Max= _____

7(b). Min= _____

8. It is given that $\tan \theta = \frac{2}{3}$. Find the value of $\frac{6 \sin \theta}{4 \sin \theta + 3 \cos \theta}$.

8. _____

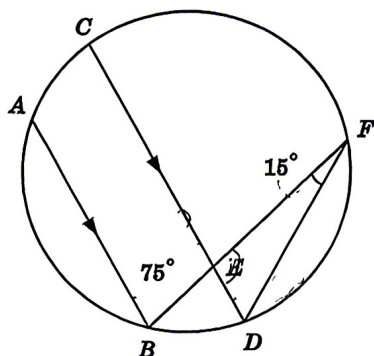
9. In the figure, BD is a diameter of the circle $ABCD$. Denote the point of intersection of AC and BD by E . If $\angle DAC = 33^\circ$ and $\angle DCA = 40^\circ$, find $\angle BAE$ and $\angle BEC$.



9(a). $\angle BAE =$ _____

9(b). $\angle BEC =$ _____

10. In the figure, BF and CD intersect at a point E and $AB \parallel CD$. If $\angle BFD = 15^\circ$ and $\angle ABF = 75^\circ$.



(a) Find $\angle EDF$

(b) Find $\widehat{BD} : \widehat{CF}$.

10(a). _____

10(b). _____

Section C Conventional Questions (31 marks)

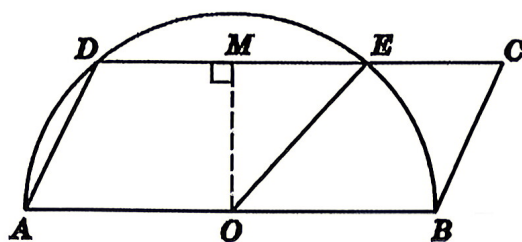
11. Simplify $\frac{\sin 150^\circ}{1 - \cos (180^\circ + \theta)} + \frac{\cos (-60^\circ)}{\tan (90^\circ + \theta) \cdot \cos (270^\circ + \theta) + 1}$.

(4 marks)

12. Solve $2 \cos \theta \tan \theta + \sqrt{3} \cos \theta = 0$, where $0^\circ \leq \theta < 360^\circ$.

(4 marks)

The perpendicular distance between AB and DC is 16 cm.



- Let r cm be the radius. Find the radius of the semi-circle.
- Find the area of the trapezium $OBCE$.

(6 marks)

[illegible]

