

**Exam for the 1<sup>st</sup> Secondary 2025 (November Exam)**

**First: Multiple Choice Questions:**

**Choose the correct answer from the given ones:**

- The simplest form of the number  $\frac{3-2i}{4-3i}$  is .....  
 (a)  $\frac{1}{25} + \frac{18}{25}i$       (b)  $\frac{1}{25} - \frac{18}{25}i$       (c)  $\frac{18}{25} + \frac{1}{25}i$       (d)  $\frac{18}{25} - \frac{1}{25}i$
- The quadratic equation which has one of its two roots equal  $(3 + 4i)$  is .....  
 (a)  $x^2 + 6x + 25 = 0$       (b)  $x^2 - 6x - 25 = 0$   
 (c)  $x^2 - 6x + 25 = 0$       (d)  $x^2 + 6x - 25 = 0$
- If the product of the two roots of the a quadratic equation :  $2x^2 - 3x + k - 3 = 0$  equals 1 , then k = .....  
 (a) 2      (b) 3      (c) 4      (d) 5
- The sign of the function  $f(x) = 6 - 2x$  is positive when  $x$  .....  
 (a)  $> 3$       (b)  $< 3$       (c)  $> -3$       (d)  $< -3$
- The angle whose measure  $1920^\circ$  lies in the ..... quadrant.  
 (a) first      (b) second      (c) third      (d) fourth
- The length of the arc which opposite to a central angle of measure  $\frac{\pi}{3}$  , in a circle of radius length 6 cm. equal .....  
 (a)  $\frac{3\pi}{2}$       (b)  $2\pi$       (c)  $3\pi$       (d)  $\frac{5\pi}{2}$
- If the terminal side of a positive angle  $\theta$  in standard position intersects the unit circle at point  $(\frac{\sqrt{3}}{2}, y)$  , where  $0 < \theta < 90^\circ$  , then  $\cot \theta =$  .....  
 (a)  $\sqrt{3}$       (b)  $-\sqrt{3}$       (c)  $2\sqrt{3}$       (d)  $\frac{-1}{\sqrt{3}}$



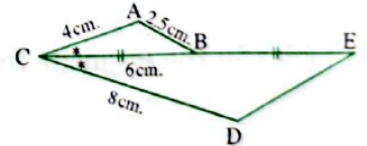
8.  $3 \sin \theta \in \dots\dots\dots$

- (a)  $[-1, 1]$                       (b)  $[-3, 3]$                       (c)  $]-3, 3[$                       (d)  $]-1, 1[$

9.  $2 \sin \theta = -1$  where  $\pi < \theta < \frac{3\pi}{2}$ , then  $m(\angle \theta) = \dots\dots\dots$

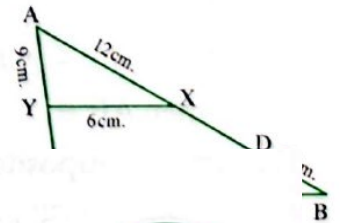
- (a)  $130^\circ$                       (b)  $210^\circ$                       (c)  $225^\circ$                       (d)  $240^\circ$

10. In the opposite figure :  
If B is the midpoint of  $\overline{CE}$   
, then  $DE = \dots\dots\dots$  cm.



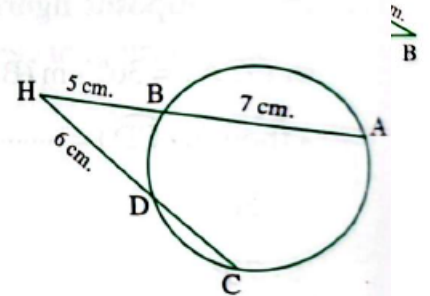
11. In the opposite figure :  
 $YC = \dots\dots\dots$  cm.

- (a) 9                                      (b) 10



12. In the opposite figure :  
 $AB = 7$  cm. ,  $BH = 5$  cm. ,  $DH = 6$  cm.  
, then length of  $\overline{CD} = \dots\dots\dots$  cm.

- (a) 6                                      (b) 5  
(c) 4                                      (d) 3





**Second: Essay Questions:**

1. If L and M are the two roots of the equation :  $4x^2 - 6x + a = 0$  and if  $L^2 + M^2 = 7LM$  , find the value of a
2. **Find in  $\mathbb{R}$  the solution set of the inequality :  $x^2 - 5x + 6 < 0$**
3. If the terminal side of an angle  $\theta$  drawn in the standard position intersects the unit circle at the point  $(-\frac{3}{5}, -\frac{4}{5})$  , find in the simplest form the value of the expression :  $\cos(180^\circ - \theta) \cot(90^\circ - \theta) + \sin(180^\circ - \theta) \tan(-\theta)$

**In the opposite figure :**

4. M is a circle ,  $\overline{AB}$  is a diameter  
 ,  $\overline{BC}$  is tangent to circle M at B  
 and  $\overline{AC}$  intersects the circle M at D  
 , such that  $CD = 16$  cm. ,  $AD = 9$  cm.  
 Find length of the radius of the circle.

