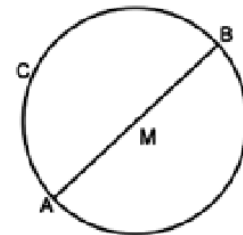


Model evaluation questions in mathematics for the first secondary stage 2018 – 2019

- 1) If the curve of the quadratic function $f: f(x) = a x^2 + c x - 15$ cuts the X-axis at the two points $(-5, 0)$ and $(\frac{3}{2}, 0)$, then the numerical value of $a + c = \dots\dots\dots$
- (a) 9 (b) 7
(c) 5 (d) 2

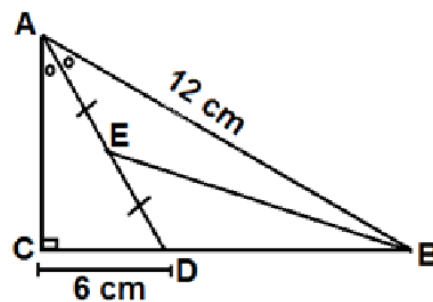
- 2) In the opposite figure :
 \overline{AB} is the diameter of circle M . If the length of the arc $\overline{ADB} = 8\pi$ cm ,then the radius of the circle M = cm
- (a) 16 (b) 8
(c) 4 (d) 2



- 3) If $f(x) = 2 \sin x$, then the range of the function f equals
- (a) $[-1, 1]$ (b) $]-2, 2[$
(c) $[-2, 2]$ (d) $]-1, 1[$

- 4) If each of the two roots of the quadratic equation : $x^2 + k^2 = 1 + 2 k x$ are more than -2 and less than 4 ,then :
- (a) $-1 < k < 3$ (b) $-3 < k < 1$
(c) $3 < k < 5$ (d) $-3 < k < 5$

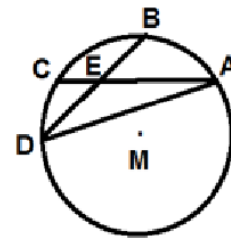
- 5) In the opposite figure :
 ABC is a right angled triangle at C .
 If $D \in \overline{BC}$, \overline{AD} bisects $\angle BAC$, $DC = 6$ cm,
 $AB = 12$ cm, E is the midpoint of \overline{AD} ,
 then the area of $\Delta BDE = \dots\dots\dots$ cm^2
- (a) 8 (b) 12
(c) 18 (d) 24



6) In the opposite figure :

$\overline{AC} \cap \overline{BD} = \{E\}$. If $m(\widehat{AB}) = 50^\circ$, $m(\widehat{CD}) = 40^\circ$,
then $\text{Sec}(\angle AED) = \dots\dots\dots$

- (a) $\sqrt{2}$ (b) $-\sqrt{2}$
(c) $\frac{1}{\sqrt{2}}$ (d) $-\frac{1}{\sqrt{2}}$



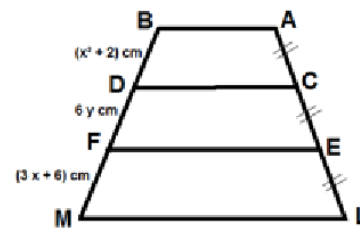
7) If $f(x) = x^2 + 2kx + 5k - 4$ is positive on \mathbb{R} , find the values of k.

8) If $A = 2i^2 - 5i^3$, $B = \frac{2}{i^3} + 5i^2$, prove that : $A - B = 3(1+i)$

9) In the opposite figure :

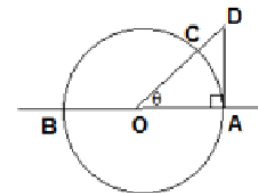
$\overline{AB} \parallel \overline{CD} \parallel \overline{EF} \parallel \overline{LM}$, $AC = CE = EL$.

Determine the values of x and y.



10) The opposite figure represents the unit circle O.

Determine the coordinates of point D using the trigonometric functions of angle θ .

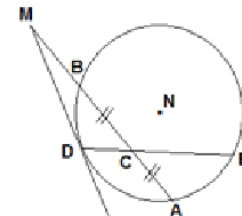


11) In the opposite figure :

\overline{MD} is a tangent to circle N at D, C is the midpoint of \overline{AB} ,

$AB = 2MB$, $CD = 4$ cm, $CE = 16$ cm.

Determine the length of \overline{MD} .



12) In the opposite figure :

\overline{AB} is a tangent to circle N at B, $AE = ED$,

M is the midpoint of \overline{ED} , $CM = 1$ cm, $MB = 4$ cm.

Determine $P_N(A)$.

