ليسه دي زار الشهادة المتوسطة التجربة الأولى لعام 2021 - 2022

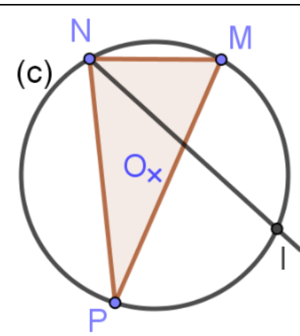
مسابقة في الرياضيات الإنكليزي	المدّة : ساعتان	الإسم :	الرقم :

إرشادات عامة:

- يسمح بإستعمال ألة حاسبة غير قابلة للبرمجة
- يمكن الإجابة على ألمسائل بالترتيب االذي تريد
- يرجى الإجابة بخط واضح ومرتب
- العلامة القصوى من 20 .

Exercise I: (9pts)

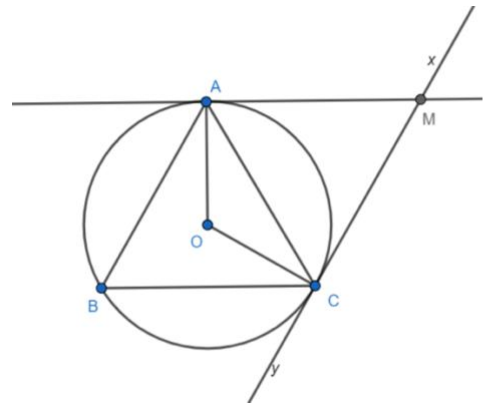
In the following table, **just one** of the proposed answers is correct. Indicate the number of the question and its corresponding answer **and justify.**

No.	Questions	Answers		
		a	b	c
1.	Consider the two circles $C_1(O_1, \sqrt{13^2-12^2})$ and $C_2(O_2, \frac{9^3-3^4}{3^5} \times 9)$ such that $O_1O_2 = (5-\sqrt{2})^2 + 2(1+5\sqrt{2})$. Then (C_1) and (C_2) are: ..(3 pts)	Externally Tangent	Internally Tangent	Externally Disjoint
2.	A, B and C are three points in a plane such that: ✓ $AB = \frac{0.\bar{4}+\left(\frac{1}{3}\right)^2}{\left(1.\bar{3}-\frac{10}{3}\right)^2} \times 6^2\ cm$ ✓ $AC = \frac{2.8\times10^{19}+0.77\times10^{20}}{46\times10^{18}-0.031\times10^{21}} - 3\ cm$ ✓ $BC = \left(\frac{3}{7}+\frac{4}{7}\times 5 \div \frac{1}{3}\right) \times 3^{-1}\ cm$ Then the **nature** of the triangle $\boldsymbol{ABC}$ is: .. (4 pts)	Right at C	Semi-Equilateral	Right Isoscles at C
3.	In the adjacent figure $\boldsymbol{MNP}$ is a triangle whose vertices are on $(\boldsymbol{c})$ If $[\boldsymbol{NI})$ is the **bisector** of $\boldsymbol{M\hat{N}P}$ then,….(2pts) 	$I\hat{P}M = I\hat{M}P$	$I\hat{P}M = 2I\hat{M}P$	$I\hat{M}P = \frac{I\hat{P}M}{2}$

Exercise 2: (3½pts)

In the adjacent figure we have:

- ✓ $mes\widehat{AC} = \frac{(0.24)^2 \times 2 \times (0.9)^2 \times 15}{(-0.3)^4 \times (1.2)^2}$ degrees.
- ✓ (xy) tangent to (C) at C.



1) Show that $A\hat{B}C = 60°$ then deduce the value of $x\hat{C}A$. (2½pts)
2) The tangent to (C) at A cuts (xy) at M.
   What is the nature of the triangle AMC? Justify(1pt)

Exercise 3: (7½ pts)

(C) is a circle of center O and radius $\boldsymbol{r = 3cm}$ and diameter $[AB]$. M is a point on (C) such that $\widehat{AM} = 60°$.

Let (d)& (T) be two tangents to (C) at A and M respectively. (T) cuts (d) at point N.

1) Draw a clear and coded figure. (¾pt)
2) Determine the nature of triangle AMO. (¾pt)
3) The parallel through O to (AM) cuts (T) at P.
   a. Prove that triangles MOP and OPB are congruent. (1½pts)
   b. What does (PB) represent for the circle (C)? and (PO) for segment [MB]? Justify. (1¼pts)
   c. Prove that that NP=NA+PB. (1¼pts)
4) Let Q be the symmetric of M with respect to O.
   a) Prove that AMBQ is a rectangle. (1pt)
   b) Calculate its area. (1pt)

GOOD WORK