


المادة: الرياضيات الشهادة: المتوسطة نموذج رقم -6- المدة : ساعتان	الهيئة الأكاديمية المشتركة قسم : الرياضيات	 المركز التربوي للبحوث والإنماء
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أسس التصحيح (تراعي تعليق الدروس والتوصيف المعدل للعام الدراسي ٢٠١٦-٢٠١٧ وحتى صدور المناهج المطورة)

Question I		Mark
1	False because when we multiply by a negative number, the inequality changes.	0.5
2	False because $\frac{90000}{0.64} = 140625$ LL .	0.5
3	True because $x^2 = 1 + \frac{5}{7} \times \frac{7^2}{10^2}$, then $x = \frac{3\sqrt{15}}{10}$ or $-\frac{3\sqrt{15}}{10}$.	0.5
4	Faux because it is $\frac{5}{2} + \frac{x^2}{2} + \frac{2x\sqrt{5}}{2} = \frac{1}{2}(\sqrt{5} + x)^2$.	0.5

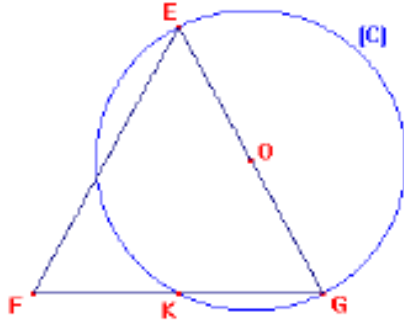
Question II		Mark
1	Using Pythagoras: $AD^2 = DF^2 - AF^2$, alors $AD = 2x - 3$	0.5
2	$AB=2AF$, then $2x - 3=2x+ 2$ has no solution	0.5
3.a	$A_{BCEF} = A_{ABCD} - A_{AFED} = (2x - 3)^2 - (2x - 3)(x + 1)$	0.5
3.b	$A=(2x - 3)(x - 4)$	0.5
3.c	$(2x-3)(x-4) = \frac{(x+1)(2x-3)}{6}$; $x = 5$.	1

Question III		Mark
1	In Gr. 9A: The number of students who will participate is $\frac{3}{5} \times 20 + \frac{4}{5} \times 15 = 24$	0.5
	In Gr. 9B: The number of students who will participate is $5 + \frac{5}{7} \times 14 = 15$	0.5
	In Gr. 9C: The number of students who will participate is $\frac{3}{5} \times 15 + \frac{4}{5} \times 15 = 21$	0.5
2	The number of students who will participate in Gr. 9 is 60 The percentage is $\frac{60}{89} \times 100 = 67.41\%$ and the director will not make the trip.	0.5 1

Question IV		Mark
1	$\begin{cases} x + 5 = 2(y - 5) \\ 2(x - 3) = y \end{cases}$	1
2	$x=9$ and $y=12$	1

Question V		Mark
1	A(2 ;0) and B(0 ; 4) (D) passes through A and B	0.75
2	$\frac{x_A + x_B}{2} = 1 = x_1$ and $\frac{y_A + y_B}{2} = 2 = y_1$	0.5
3.a	(OI): $y=2x$	0.5
3.b	$\tan \alpha = 2 = a_{(OI)}$, then $\alpha = \tan^{-1} 2 = 63.43 \approx 63^\circ$	0.5

4.a	$y_C = y_B = 4$, then $(BC) : y = 4$, $x_J = \frac{x_C + x_B}{2} = 2$. Thus $(D') : x = 2$	0.75
4.b	$x_A = 2$, then (D') passes through A. Then $AB = AC$.	0.5
5	<p>ILA and AJC are similar because $\hat{L} = \hat{J} = 90^\circ$ $\hat{C} = \hat{A}$ since the triangle ABC is isosceles ($\hat{C} = \hat{B}$ and $\hat{B} = \hat{A}$ (alternate interior))</p> <p>Ratio of similitude: $\frac{IL}{AJ} = \frac{AL}{JC} = \frac{IA}{AC} = \frac{1}{2}$, then $AC = 2AI$ but $AI = OI$.</p>	1 0.5

Question VI		Mark
1		0.5
2.a	EKG is a right triangle at K (inscribed in a semi-circle) and EFG is an isosceles triangle with vertex E, then [EK] is an altitude and median, then K is the midpoint of [FG]	0.5
2.b	By Pythagoras: $EK^2 = EG^2 - KG^2$, then $EK = 5.45$	0.5
3.a	$\overline{KS} = \overline{FE}$ (by translation)	0.5
3.b	$\overline{ES} = \overline{FK}$ since ESFK is a parallelogram, and $\overline{KG} = \overline{FK}$ since K is the midpoint of [FG], then $\overline{ES} = \overline{KG}$ and $\hat{K} = 90^\circ$. Thus ESGK is a rectangle.	0.75
4.a	EPR is an isosceles triangle since $\hat{R} = \hat{F}$ and $\hat{P} = \hat{G}$ (corresponding angles), but $\hat{G} = \hat{F}$, thus $\hat{R} = \hat{P}$.	0.5
4.b	By Thales: $\frac{EP}{EG} = \frac{ER}{EF} = \frac{RP}{FG} = \frac{x}{6}$, then $RP = \frac{5x}{6}$.	0.75
4.c	$\frac{5x}{6} + 6 - x + 6 - x + 5 = \frac{-7x}{6} + 17$	0.5
4.d	$17 = \frac{-7x}{6} + 17$, then $x = 0$. Thus a position for P cannot be found.	0.5