
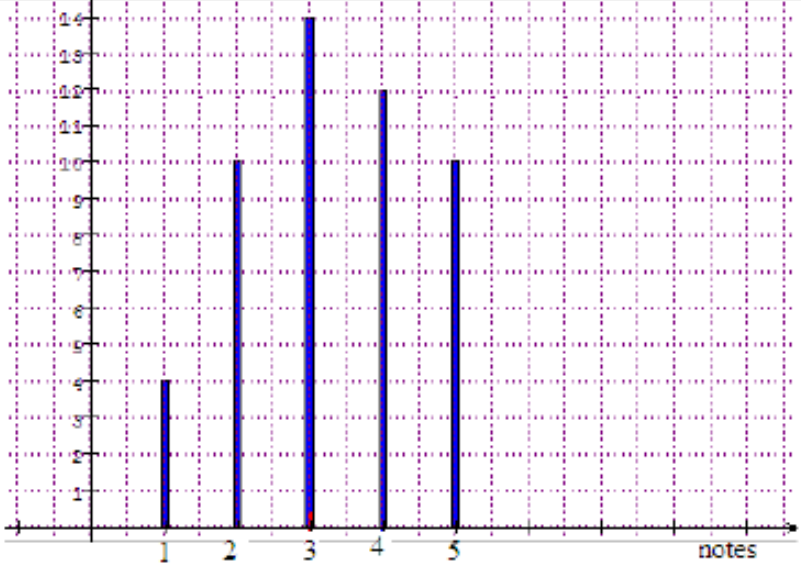


المادة: الرياضيات الشهادة: المتوسطة نموذج رقم -٥- المدة : ساعتان	الهيئة الأكاديمية المشتركة قسم : الرياضيات	 المركز العلمي للبحوث والابتداء
---	---	---

أسس التصحيح (تراعي تعليق الدروس والتوصيف المعدل للعام الدراسي ٢٠١٦-٢٠١٧ وحتى صدور المناهج المطورة)

Question I		
Answers		Note
2	$a+1 = \frac{3+\sqrt{5}}{2}; a^2 = \frac{3+\sqrt{5}}{2}$ then $a+1 = a^2$ therefore $a^2 - a - 1 = 0$	1
3	$\frac{1}{a} = \frac{2}{1+\sqrt{5}} = \frac{1-\sqrt{5}}{-2}$ $a-1 = \frac{1-\sqrt{5}}{-2}$	0.5
Question II		
1.a	$(x+3)^2 - 4 = x^2 + 6x + 9 - 4 = x^2 + 6x + 5$	0.5
1.b	$x^2 + 6x + 5 = [x+3-2][x+3+2] = (x+1)(x+5)$	0.5
2.a	Area of ABC = $\frac{AB \times AC}{2}$ , $(x+1)(x+5) = \frac{2(x+1) \cdot AB}{2}$ then $AB = x+5$	0.75
2.b	$BC^2 = (2x+2)^2 + (x+5)^2 = 5x^2 + 18x + 29$	0.5
3	$(x+3)^2 - 4 = 12$ then $(x+3)^2 = 16$ , $x+3 = 4$ or $x+3 = -4$ then $x = 1$ , $x = -7$ impossible.	0.75
Question III		
1	$\bar{x} = \frac{1 \times 4 + 2 \times 10 + 3 \times 14 + 4 \times 12 + 5 \times 10}{50} = 3,28$	0.75
2	$14+12+10 = 36$ the frequency $\geq 3$ . $\frac{36}{50} \times 100 = 72\%$ . $72\% \geq 65\%$ true.	0.75
3		1
Question IV		
1	A : Sum = $2000 \times 100 = 200\,000$ LL B : Sum = $1500 \times 100 + 210\,000 = 370\,000$ LL	0.5

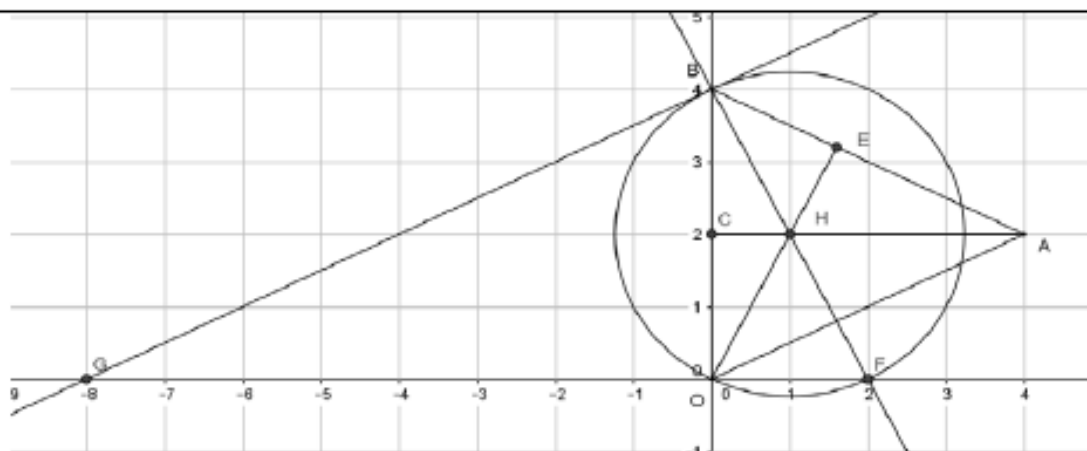
2	$y_1 = 2000x$ , $y_2 = 1500x + 210000$	0.5
3	$2000x = 1500x + 210000$ alors $x = 420$ km et le prix payé = $2000 \times 420 = 820000$ L.L	0.75
4	Pour A : $500000 = 2000x$ alors $x = 250$ km If he choice B, sum = $1500 \times 250 + 210000 = 585000$ LL. Yes Jad do good choice.	0.75

**Question V**

1		0.5
2	BFE right angled triangle (inscribed in half circle).	0.5
3	I midpoint of [AE] then [BI] perpendicular bisector in ABE isosceles , then BIE is right at I, then inscribed in half circle of diameter [BE]	0.5
4	ABE isosceles then : $\widehat{BAE} = \widehat{AEB} = (180 - 140) \div 2 = 20^\circ$ $\widehat{EBF} = 40^\circ$ ( exterior). $\cos \widehat{EBF} = \frac{BF}{BE}$ alors $BF = BE \times \cos(40^\circ) = 6 \times \cos(40^\circ) = 4,59$ cm	1
5.a	$\widehat{BFE} = \widehat{BIA} = 90^\circ$ A common angle . $\frac{AB}{AE} = \frac{AI}{AF}$ then : $AB \times AF = AI \times AE = AI \times 2 AI = 2 AI^2$ .	0.5 0.75
5.b	In EBI right at B we have: $AF = 6 + 4.59 = 10,59$ cm $AB \times AF = 2 AI^2$ we calculate AI then $AE = 2AI$ .	
6.a	B orthocenter of AEH then [EB] third altitude then (EB) perpendicular to (AH) then to (GL).	1,25
6.b	Thales : $\frac{EL}{EH} = \frac{EG}{EA}$ but $EG = \frac{EB}{\cos 20} = 6.38$ then $\frac{EL}{EH} = \frac{6.38}{11.26}$	0,5

Question VI

1



0,5

2.a  $AB = AO = \sqrt{20}$  0,5

2.b Slope of(OA) =  $\frac{1}{2}$ , (d) perpendicular à (OA) then Slope of(d)= -2  
B is on (d) because  $4 = -2x_0 + 4$  0,5

3.a (AH) altitude then perpendicular to (y'y) then  $y_H = y_A = 2$  0,5

3.b H is on (d) then  $x_H = 1$  0,5

4.a  $y_F = 0$  and F is on (d) then  $x_F = 2$  0,5

4.b  $\hat{O} = \hat{E} = 90$  and  $E\hat{O}B = O\hat{B}F$  HOB isocoles triangle  
Ratio =  $\frac{OB}{BF} = \frac{4}{\sqrt{20}}$  1

5.a (T) and(OA) are parallel since they are perpendicular to (FB). 0,5

5.b  $a(T) = a(OA) = \frac{1}{2}$   
and B on (T) then the equation is  $y = \frac{1}{2}x + 4$ . 0,5