Lycee LDDR : Niveau 1 TE 12 Géométrie 3D

2MG Level 1	SOLID GEOMETRY	TEST 6
2018/05/09		2MG03

pts Name: _ 50'

WITH THE CALCULATOR – with formulaire

INDICATE YOUR COMPUTATIONS

1) Give the equation of the smallest sphere that passes through $A(4;-18;5)$ and $B(-8;10;7)$.

2) Determine whether $x^2+y^2+z^2+4y-10z=7$ is the equation of a sphere. Give its centre and radius in case it is a sphere.

3) Determine the radius of the sphere centred at $(7;-1;0)$ and tangent to the line $d: \begin{cases} x=7-2\lambda \\ y=3+\lambda \\ z=5 \end{cases}$

4) Give the equation of the plane tangent to the sphere $s: x^2 + (y-3)^2 + (z+1)^2 = 12$ at one of its intersection points with the line $l: \begin{cases} x = -2 \\ y = 3 + \lambda \\ z = -1 + \lambda \end{cases}$

5) **Determine the possible coordinates of point** $C(k; k; k)$ such that the sphere centred at C with radius 4 is tangent to the plane $\pi: 2x + 2y + z - 8 = 0$.

6) Determine the centre and the radius of the intersection circle of plane $\pi: 2x + 2y + z - 8 = 0$ with sphere $(x + 15)^2 + y^2 + (z - 2)^2 = 169$

BONUS

The sphere $x^2 + y^2 + z^2 = 9$ is secant to the plane α. The intersection circle is centred at point $(0; 1; 0)$. Determine the radius of the intersection circle and the equation of plane α.