LDDR Niveau 1 : TE 4 Geometrie 3D

2MG Level 1	SOLID GEOMETRY	TEST 2
2018/03/20		2MG03

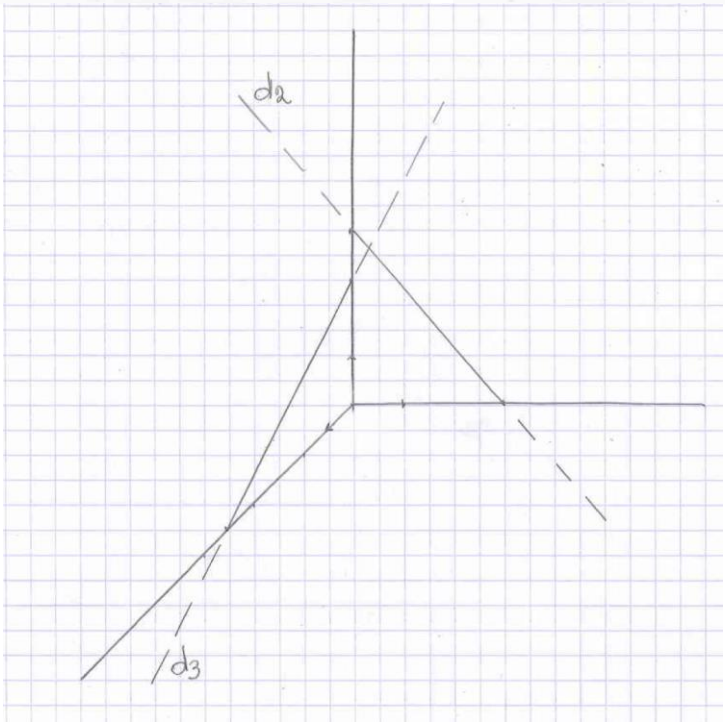
pts Name: _____ 90'

WITH THE CALCULATOR – with formulaire

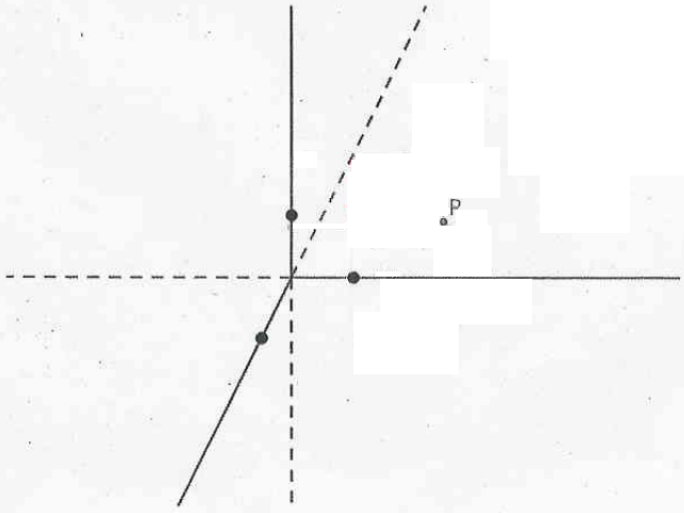
INDICATE YOUR COMPUTATIONS

➢ **EXERCISE 1** __ / 8

The line d is given by its projections d_2 and d_3.
Draw the traces of d and the projection d_1 and distinguish the visible/invisible parts of these four lines.



The point P is at altitude -1. Place and name its three projections.



➢ EXERCISE 2 ___ / 8

The plane π contains $A(0;7;0)$ and is parallel to $\vec{r} = \begin{pmatrix} 2 \\ -3 \\ 1 \end{pmatrix}$ and $\vec{s} = \begin{pmatrix} 0 \\ 2 \\ -1 \end{pmatrix}$.

The line d is $d: \begin{cases} x=4\lambda \\ y=10+\lambda \\ z=-2-3\lambda \end{cases}$

1) Determine the coordinates of the trace of d in the sidewall.
2) Show that a Cartesian equation for π is $x + 2y + 4z - 14 = 0$.
3) Determine, by computations, the relative position of d and π.
   (and if any, the coordinates of the intersection point)

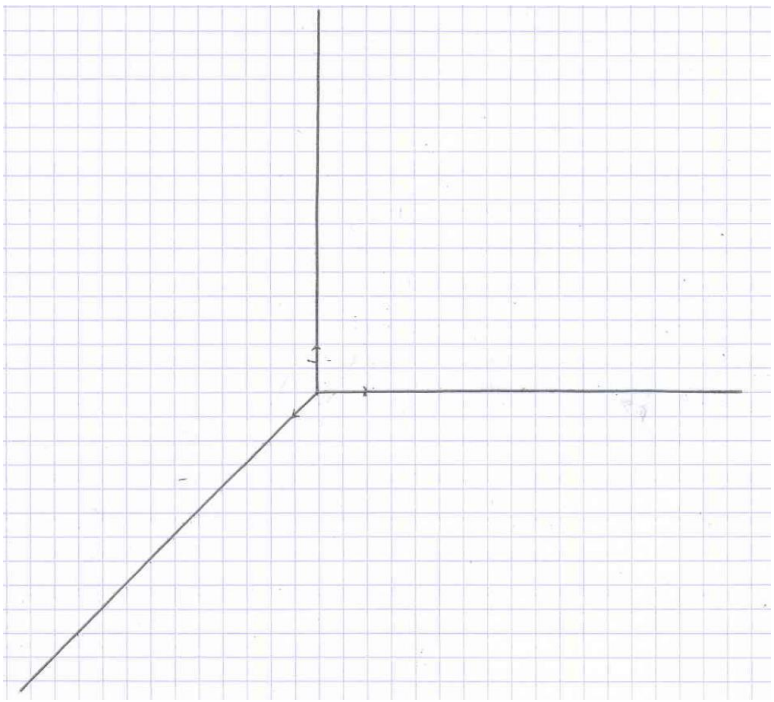
➢ EXERCISE 3

We consider the planes $\pi: 3x + 2y - 3z - 12 = 0$ and $\sigma: 2x+5y+3z-15=0$.
The intersection line is $i = \pi \cap \sigma$.

1) **CALCULATIONS**
   a) Determine the equation of i. (choose a direction vector with integer components)
   b) Determine the acute angle between these two planes

2) **DRAWING:** *Don't use the calculations' results!*
   The intersections of the plane π with the axes are placed : π_x, π_y and π_z.
   a) Draw the traces of these two planes.
   b) Draw the intersection line, traces included and projection on the floor i_1 included.

Carefully show the visible/invisible/hidden parts of the planes and of the line.



➢ **EXERCISE 4** ___ / 7

The plane π is given by its intersections with the axes. A line *d* is given with d_1 its projection on the floor.

a) Draw the visible part of the plane.
b) Build the three traces of the line (clearly name them). Clearly show the visible part of *d*.
c) Carefully draw the point $I = \pi \cap d$, and its 3 projections.
Distinguish the hidden (behind the plane) and visible parts of d.