

d way
+ it
(6)

ds
by
newly
(5)

egs

Equal

Parallel

Lines $x - y = 4$
 $2x - 2y = 8$
 (same eqⁿ mult.
 by a constant)

$x - y = 4$
 $x - y = 6$
 $2x - 2y = 15$
 Same eqⁿs
 but
 different
 constants

Planes

$x + 2y - z = 2$
 $2x + 4y - 2z = 4$
 $3x + 6y - 3z = 6$
 All the same
 eqⁿ

$x + 2y - z = 2$
 $x + 2y - z = 4$
 $3x + 6y - 3z = 7$
 Same eqⁿs but different
 constants

$0 = 0 \Rightarrow$ many
 True statement Solutions

$3 = 0 \Rightarrow$ No
 False Statement Solutions

Solving 3 equations in 3 unknowns

* First check to see if it
there is a unique solution
(or put it into G.C)

No unique solution

⇒ ① Check whether they
the same eqⁿ ⇒ they are
plane ⇒ the equations
-eg. are "dependent" and
have many solutions.

are (multiples of)
all the same
(subtract eqⁿs)
⇒ 0=0

② Check for 3 parallel
planes
ie same eqⁿ but
different constant

(Graphically)
(flying carpets)
(subtract eqⁿs)
⇒ eg 3=0

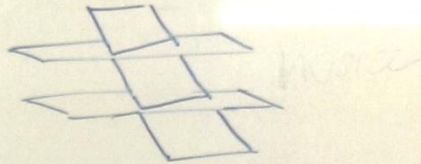
eg ⇒ The equations are
inconsistent & have No solution.

*③ If only 2 planes are parallel but the 3rd isn't
(↑ same eqⁿ different constant)

Then equations are inconsistent
there is no solution

Graphically, ninja style

⊙ (subtract
eqⁿs
⇒ 3=0)



If you have none of these,
Next look for patterns
in your linear equations.

say (D) and (E)

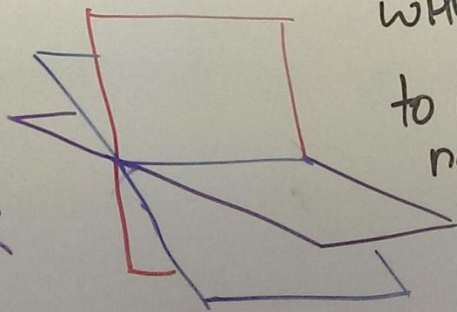
(4) If (D) & (E) are the
same equation (or multiple of)

then you have a whole line
of many solutions.

You may have to choose
Some numbers to fit these!

Graphically, the planes
meet like pages of
a book meet at the
spine.

Book



Check
with eqⁿ (F)

to make sure
no silly
mistakes

(5)

pe

t

⑤ If Ⓓ and Ⓔ are
parallel equations

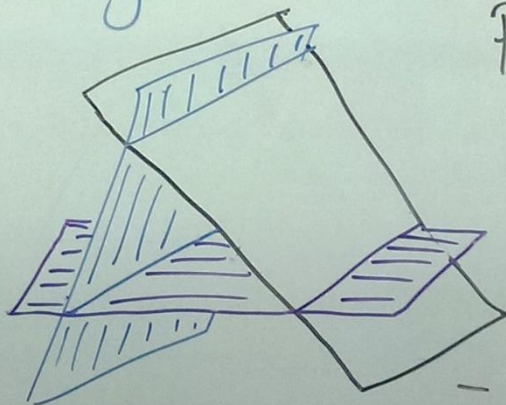
Organised by
the RGW1's 4/10/5
(Jess, Tia, Inertia, 2Arrows)

then the equations have

- No solutions
- they are inconsistent

Graphically, the planes meet
tent style

Tent



Pairs of
planes
meet along
parallel lines

- Check that
eqⁿ Ⓕ is parallel
too - avoid accident