

## Chapter 9 / Example 43

# Intersecting planes

Find the point of intersection between the planes

$$\pi_1: x + 2y - z = 4, \pi_2: 2x - 3y + z = -3 \text{ and } \pi_3: 3x + y - 4z = 1.$$

Press **[APPS]** :PlySmlt2.

Press **[enter]** and select 2:SIMULTANEOUS EQN SOLVER.

You are solving 3 equations with 3 unknowns

Press **[f5]** NEXT.

```

SIMULT EQN SOLVER MODE
EQUATIONS 2 3 4 5 6 7 8 9 10
UNKNOWN 2 3 4 5 6 7 8 9 10
DEC  FRAC
NORMAL SCI  ENG
FLOAT 0 1 2 3 4 5 6 7 8 9
RADIAN DEGREE
[MAIN] [HELP] [NEXT]
  
```

Solve the equations 
$$\begin{cases} x + 2y - z = 4 \\ 2x - 3y + z = -3 \\ 3x + y - 4z = 1 \end{cases}$$

Enter to coefficients into the matrix.

```

SYSTEM MATRIX (3 x 4)
[ 1  2 -1  4 ]
[ 2 -3  1 -3 ]
[ 3  1 -4  1 ]
[SYSM](3,4)= 1
[MAIN] [MODE] [CLEAR] [LOAD] [SOLVE]
  
```

Press **[f5]** SOLVE.

The calculator shows the solution which is the point  $(1, 2, 1)$ .

```

SOLUTION
x1=1
x2=2
x3=1
[MAIN] [MODE] [SYSM] [STORE] [F<D]
  
```