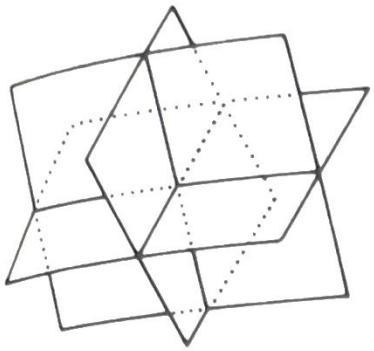
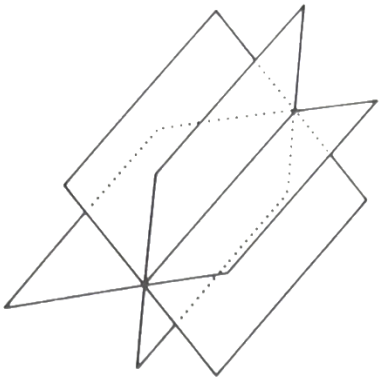
Geometric Configurations of Simultaneous Equations

Match the systems of linear equations to their geometric configuration.

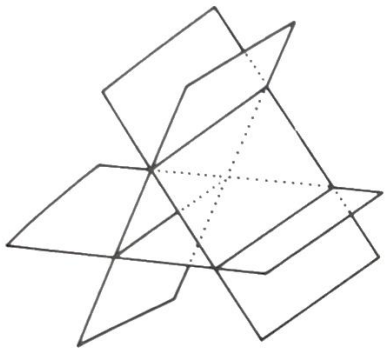
A: Three planes meet in a point



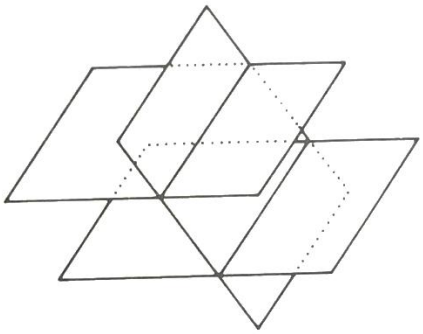
B: Three planes meet in a sheaf



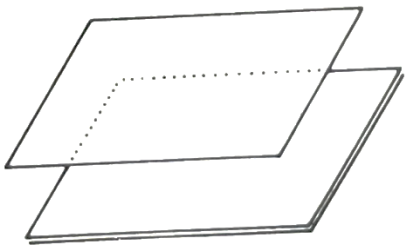
C: Three planes meet in a prism



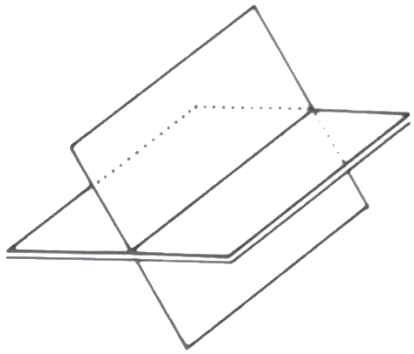
D: Two parallel planes meet one in two lines



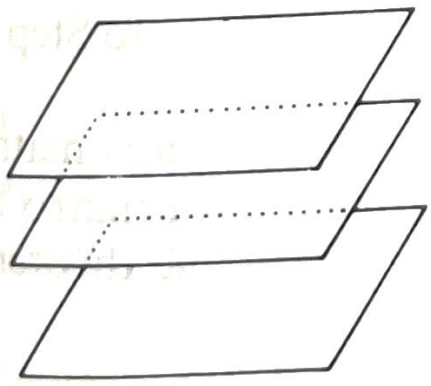
E: Two identical planes and one parallel



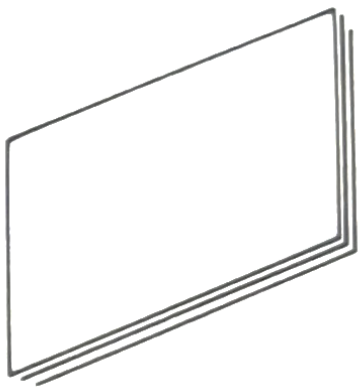
F: Two identical planes meet one in a line



G: Three parallel planes



H: Three identical planes

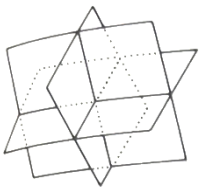
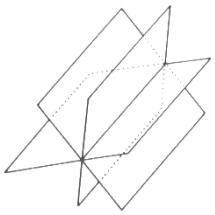
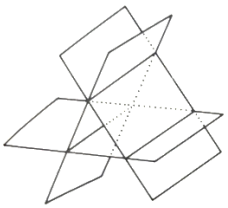
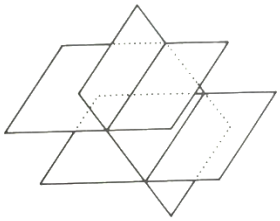
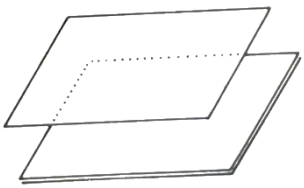
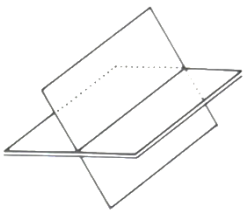
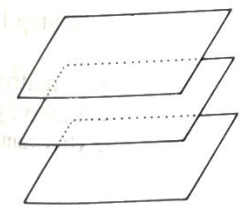
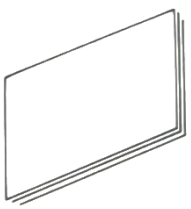


Consistent			

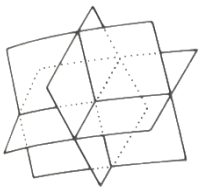
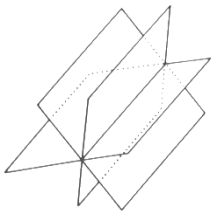
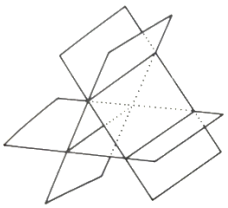
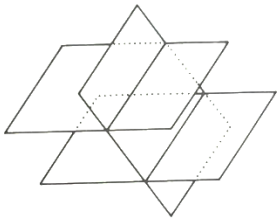
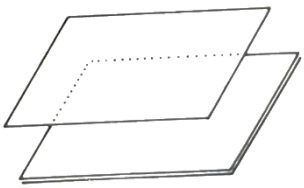
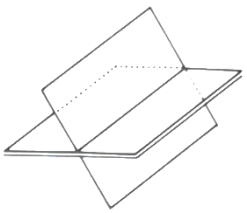
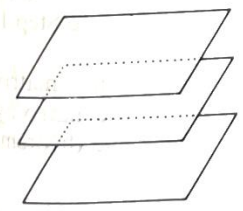
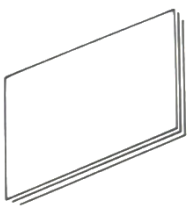
Inconsistent			

1	$\begin{aligned} 3x + 2y - 5z &= 3 \\ 7x - y - 2z &= 3 \\ 6x + 4y - 10z &= 6 \end{aligned}$	
2	$\begin{aligned} 3x + 2y - 5z &= 3 \\ 7x - y - 2z &= 3 \\ 6x + 4y - 10z &= -1 \end{aligned}$	
3	$\begin{aligned} 3x + 2y - 5z &= 3 \\ 7x - y - 2z &= 3 \\ 2x - 3y + 4z &= -1 \end{aligned}$	
4	$\begin{aligned} 3x + 2y - 5z &= 3 \\ -15x - 10y + 25z &= -15 \\ 6x + 4y - 10z &= 6 \end{aligned}$	
5	$\begin{aligned} 3x + 2y - 5z &= 3 \\ 7x - y - 2z &= 3 \\ 4x - 3y + 3z &= -1 \end{aligned}$	
6	$\begin{aligned} 3x + 2y - 5z &= 3 \\ 7x - y - 2z &= 2 \\ 4x - 3y + 3z &= -1 \end{aligned}$	
7	$\begin{aligned} 3x + 2y - 5z &= 3 \\ -15x - 10y + 25z &= -15 \\ 6x + 4y - 10z &= -1 \end{aligned}$	
8	$\begin{aligned} 3x + 2y - 5z &= 3 \\ -15x - 10y + 25z &= 3 \\ 6x + 4y - 10z &= -1 \end{aligned}$	

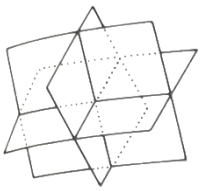
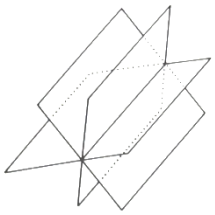
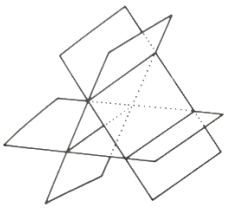
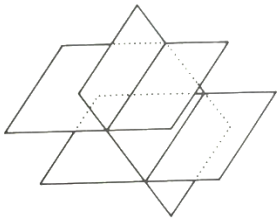
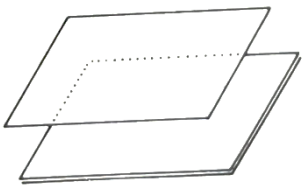
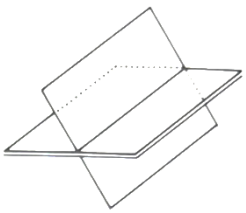
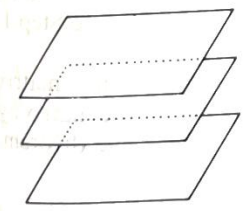
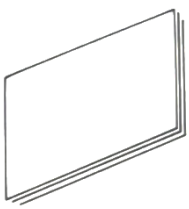
1. Fill in the gaps using only the numbers 2 or 4 to make each configuration.
(One of them is impossible!)

A		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$
B		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$
C		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$
D		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$
E		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$
F		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$
G		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$
H		$3x + y + 2z = 4$ $3x + y + \square z = \square$ $6x + \square y + \square z = 8$

2. Fill in the gaps using only the numbers 3 or 6 to make each configuration.
(One of them is impossible!)

A		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$
B		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$
C		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$
D		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$
E		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$
F		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$
G		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$
H		$2x - y + 3z = 3$ $2x - y + \square z = \square$ $4x - 2y + \square z = \square$

3. Fill in the gaps using only the numbers 2 or 4 to make each configuration.
(One of them is impossible!)

A		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$
B		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$
C		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$
D		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$
E		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$
F		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$
G		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$
H		$3x + 2y + \square z = 1$ $6x + 4y + \square z = \square$ $6x + \square y + \square z = 5$