

Stability and Determinacy of Composite Structure

Unknowns	Equations
1- Each truss member give one unknown	1- each member carry moment give (3 equations)
2- reactions	2- each joint connect truss members only give (2 equations)
3- each joint connect member carry moment give unknown in these equation (2*(m-1))	

Ex1:- Find the stability and determinacy of composite structure as shown below.

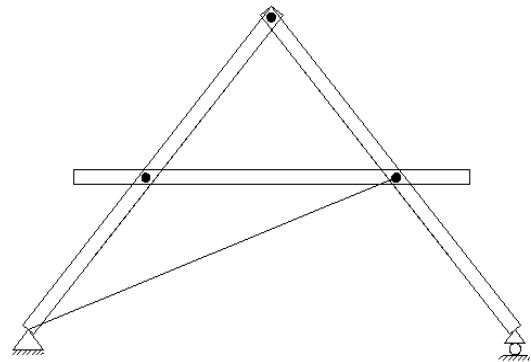
Solution:

Equations

$$(3*3) + 0 = 9$$

Unknowns

$$1 + 3 + (3*(2(2-1))) = 10$$



Unknowns > Equations, Stable & indeterminate 1st degree

Ex2:- Find the stability and determinacy of composite structure as shown below.

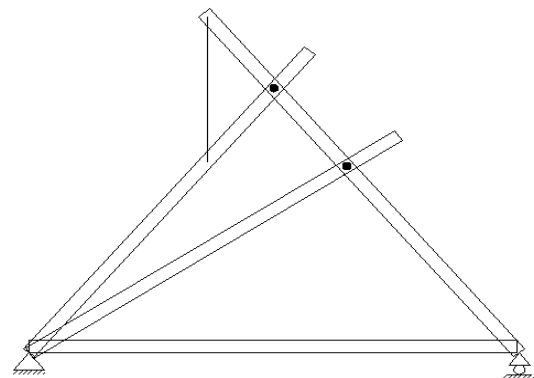
Solution:

Equations

$$(4*3) + 0 = 12$$

Unknowns

$$1 + 3 + (3*(2(2-1))) + (2(3-1)) = 14$$



Unknowns > Equations, Stable & indeterminate 2nd degree

Ex3:- Find the stability and determinacy of composite structure as shown below.

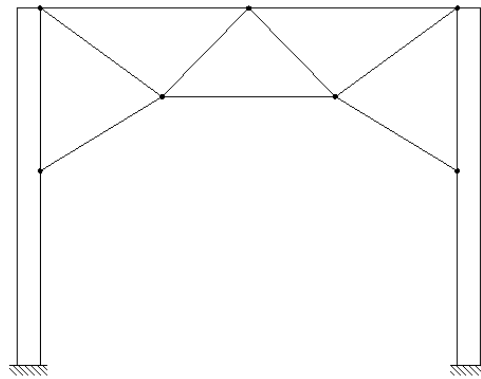
Solution:

Equations

$$(2*3) + (3*2) = 12$$

Unknowns

$$9+6+ 0 = 15$$



Unknowns > Equations, Stable & indeterminate 2nd degree

Ex4:- Find the stability and determinacy of composite structure as shown below.

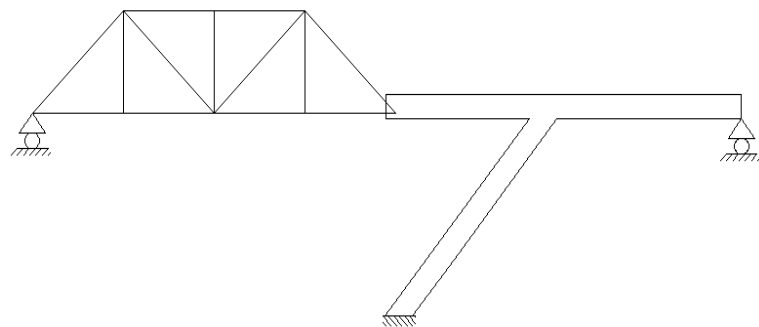
Solution:

Equations

$$(1*3) + (7*2) = 17$$

Unknowns

$$13+5+ 0 = 18$$



Unknowns > Equations, Stable & indeterminate 1st degree

H.w: Find the stability and determinacy of composite structure as shown below.

