

MR

Ahmed Mahdy



مدرس خصوصي

حضورى

اونلاين

لجصل الطالب علي

مقاطع فيديو هات لشرح المقرر بشكل وافي

ملخص للمادة Pdf للمذكرة واطراجة

محاضرات مباشرة علي برنامج زووم

مناقشة الأجزاء الغير مفهومة

تواصل مستمر مع معلم المادة

للتواصل

0567630097

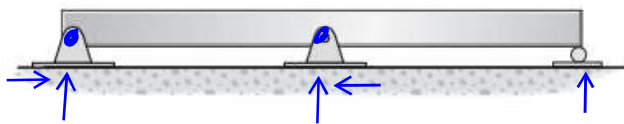
0565657741



Assignment No (1)

Stability and instability

1. Classify each of the structures as statically determinate, statically indeterminate, or unstable. If indeterminate, specify the degree of indeterminacy. The supports or connections are to be assumed as stated.

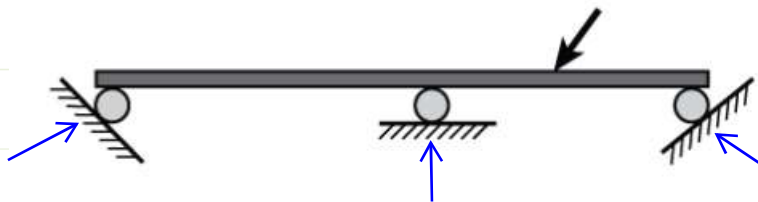


$$\begin{aligned} & \cdot r < c + 3 \\ & \cdot r = c + 3 \\ & \cdot r > c + 3 \end{aligned}$$

Unstable
Statically determinate
Statically indeterminate

$$r = 5, \quad c = 0 \Rightarrow r > c + 3$$

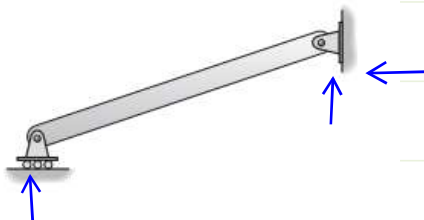
the structure is indeterminate two degree



$$r = 3, \quad c = 0 \Rightarrow r = c + 3$$

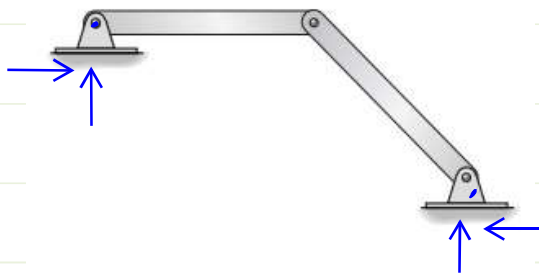
also is unstable

المبنى غير محدد لأن كل supports من أنواع roller وهذا غير ممكن



$$r = 3, \quad c = 0 \Rightarrow r = c + 3$$

determinate

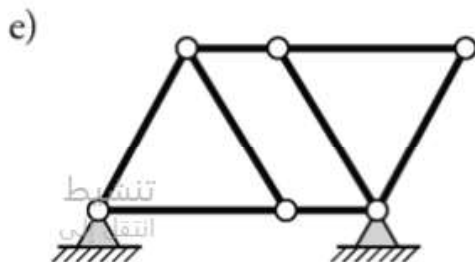
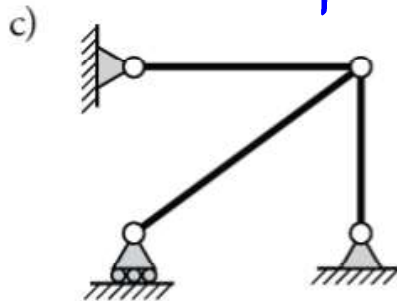
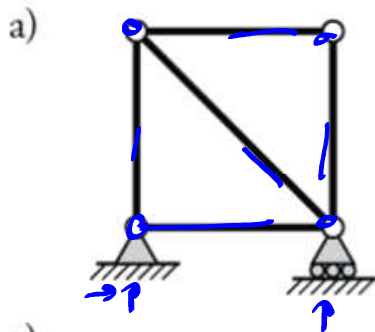


$$r = 4, C = 1 \Rightarrow r = C + 3$$

دetermine

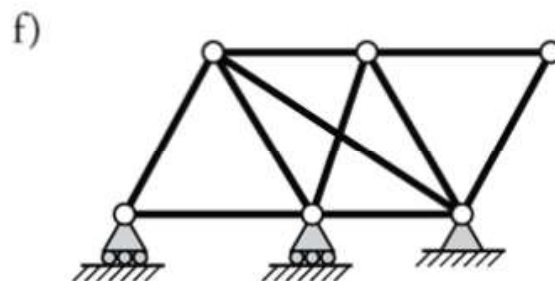
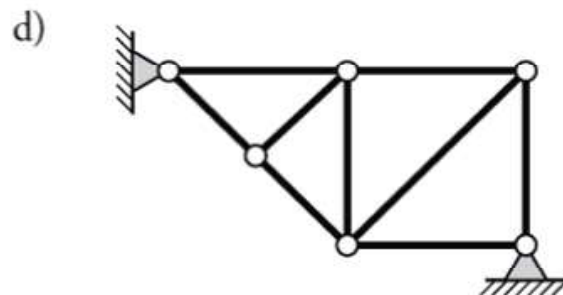
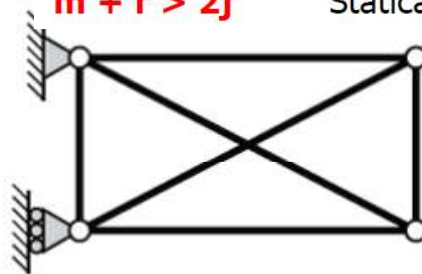
2- Determine whether each of the trusses below are internally determinate, indeterminate, or unstable. If it is indeterminate, to what degree is it indeterminate?

$$m = 5 \quad r = 3 \quad 4$$

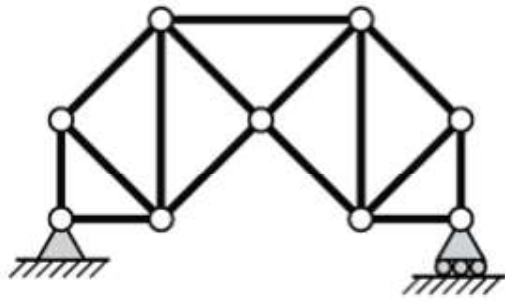


b)

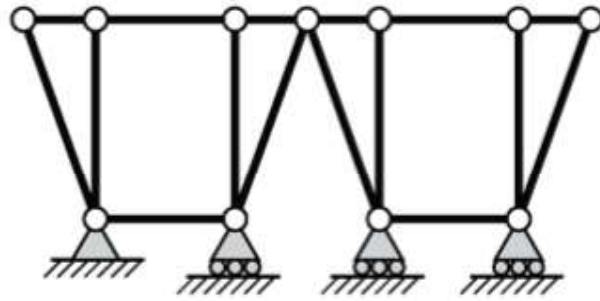
$m + r < 2j$	Unstable
$m + r = 2j$	Statically determinate
$m + r > 2j$	Statically indeterminate



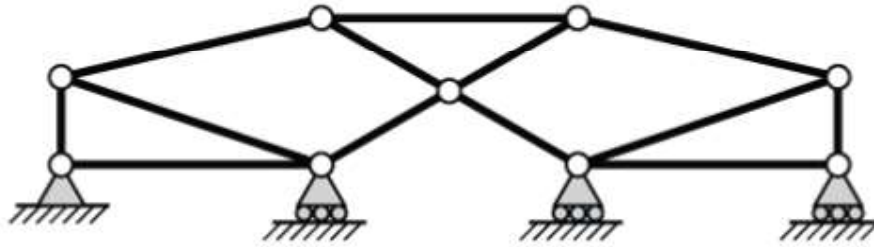
g)



h)



i)



a)

$$m = 5, r = 3, j = 4$$

$$m + r = 2j$$

$$5 + 3 = 2 \times 4$$

determinate

b)

$$m = 6, r = 3, j = 4$$

$$m + r > 2j$$

$$6 + 3 > 2 \times 4$$

indeterminate one degree

c)

$$r = 5, c = 1$$

$$r > c + 3$$

$$5 > 1 + 3$$

indeterminate

$$\textcircled{d} \quad m = 9, r = 4, J = 6$$

$$m + r > 2J$$

$$9 + 4 > 2 \times 6$$

$$13 > 12$$

indeterminate one degree

$$\textcircled{e} \quad m = 8, r = 4, J = 6$$

$$m + r = 2J$$

$$8 + 4 = 2 \times 6$$

determinate

$$\textcircled{f} \quad m = 10, r = 4, J = 6$$

$$m + r > 2J$$

$$10 + 4 > 2 \times 6$$

$$14 > 12$$

indeterminate second degree

$$\textcircled{g} \quad m = 15, r = 3, J = 9$$

$$m + r = 2J$$

$$15 + 3 = 2 \times 9$$

$$18 = 18$$

determinate

$$\textcircled{h} \quad m = 16, \quad r = 5, \quad J = 11$$

$$m + r < 2J$$

$$16 + 5 < 2 \times 11$$

$$21 < 22$$

un stable

$$\textcircled{i} \quad m = 13, \quad r = 5, \quad J = 9$$

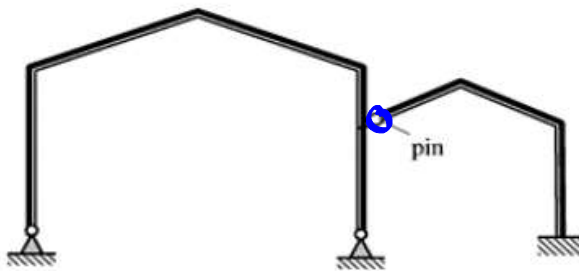
$$m + r = 2J$$

$$13 + 5 = 2 \times 9$$

$$18 = 18$$

determinate

3. Check for the frames shown below as statically determinate or statically indeterminate. If statically indeterminate calculate degree of indeterminacy and the number of degrees-of-freedom



$$3m + r < 3j + c$$

Unstable

$$3m + r = 3j + c$$

Statically determinate

$$3m + r > 3j + c$$

Statically indeterminate

$$\text{equations} = 3 + 1 = 4$$

$$(1) \text{ unknowns} = 7$$

indeterminate 3 degree

