3055 BA SANGAM COLLEGE

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School: Ba Sangam College **Year/Level: 13** **Name: _____**

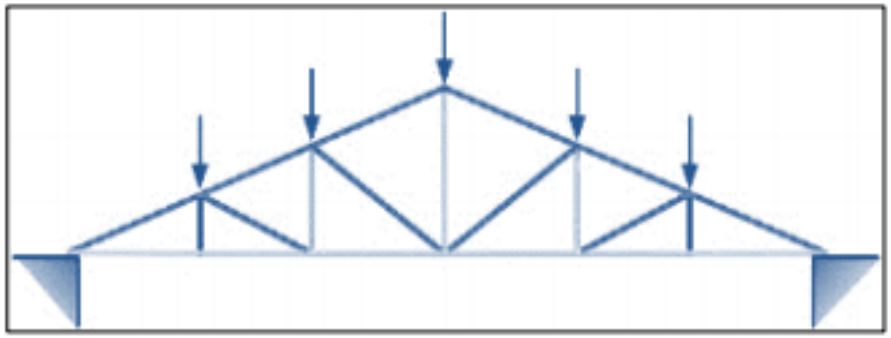
Subject: Technical Drawing **Worksheet 16** **Year: _____**

Strand	Applied Mechanics
Sub Strand	Truss
Content Learning Outcome	Define the terms and use the knowledge to do truss analysis

Truss Analysis

A truss is analyzed by using **m = 2j - 3**, where **m** is number of members, **j** represents the number of joints and **3** represents the external support reactions.

Example:



$\mathbf{m = 2j - 3}$

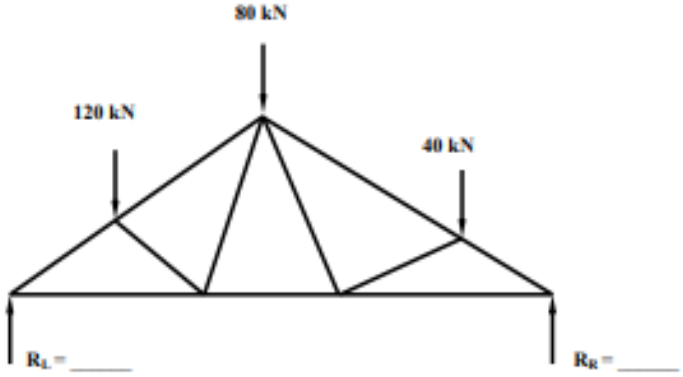
$21 = 2(12) - 3$

$21 = 24 - 3$

$21 = 21$

Since 21 = 21, *we can say that the truss is balanced and does not contain any redundant member.*

Activity (15 marks)



QUESTION 3 **(15 marks)** **Year:** _____

Given: A typical truss with loads acting on it and its sketch not drawn to scale.

Required: (i) Find the reactions R_L and R_R at the supports. **(5 marks)**

(ii) Determine the magnitude and nature of the members of the truss by completing the table given on the below. **(9 marks)**

MEMBER	AF	BG	CJ	DK	EK	EH	EF	FG	GH	HJ
MAGNITUDE										
NATURE										

(i)			
1	Accuracy – load line	1	
2	Correct polar diagram	1	
3	Correct funicular polygon	2	
4	Correct value of R_L and R_R	1	
5	Correct units shown	1	
(ii)			
6	Correct value of members magnitude	3	
7	Correct nature of members	3	
8	Correct shape of vector diagram	2	
9	Correct labels	1	

Load line scale: 10mm = 20 kN