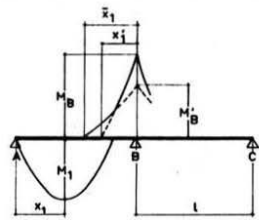


Vigas Continuas

Cargas iguales - luces iguales

Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme
MOMENTOS DE TRAMO Y APOYO - ABCISAS - CORTANTES



2 TRAMOS

MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$

$$M_B = \frac{p \cdot l^2}{8}$$

ABCISAS

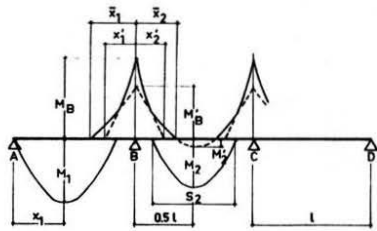
$$x_1 = X_1 \cdot l$$

$$x'_1 = 0.25 \cdot l$$

CORTANTES

$$V_1 = r_1 \cdot p \cdot l$$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B	16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X1	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X1	1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562



3 TRAMOS

MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$

ABCISAS

$$x_1 = X_1 \cdot l$$

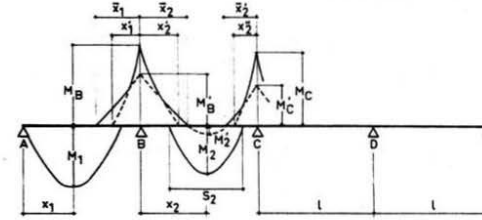
$$S_1 = s_1 \cdot l$$

CORTANTES

$$V_1 = r_1 \cdot p \cdot l$$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2	13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2	-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB	8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B	20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2	0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1	0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2	0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
X1	1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
X2	-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.508
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442

Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme
MOMENTOS DE TRAMO Y APOYO - ABCISAS - CORTANTES



4 TRAMOS

MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$

ABCISAS

$$x_1 = x_1 \cdot l$$

$$S_2 = s_2 \cdot l$$

CORTANTES

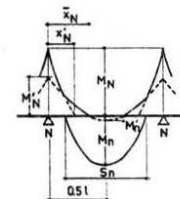
$$V_1 = r_1 \cdot p \cdot l$$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	10.04	10.28	10.53	10.80	11.07	11.36	11.65	11.96	12.28	12.61	12.96
m2	12.40	13.14	13.96	14.87	15.92	17.12	18.52	20.17	22.15	24.00	24.00
m'2	-22.40	-27.31	-35.00	-48.69	-80.00	-224.0	280.00	86.15	50.91	36.13	28.00
mB	8.30	8.39	8.48	8.58	8.68	8.78	8.89	9.00	9.11	9.22	9.33
mC	9.33	9.66	10.00	10.37	10.76	11.20	11.66	12.17	12.73	13.33	14.00
m'B	18.67	16.97	15.55	14.34	13.33	12.44	11.67	10.98	10.37	9.82	9.33
m'C	28.00	25.45	23.32	21.51	20.00	18.66	17.50	16.47	15.55	14.74	14.00
X1	0.446	0.441	0.436	0.430	0.425	0.420	0.414	0.409	0.404	0.398	0.393
X2	0.518	0.520	0.521	0.523	0.525	0.527	0.529	0.530	0.532	0.534	0.536
S2	0.803	0.780	0.757	0.733	0.709	0.684	0.657	0.630	0.601	0.577	0.577
X'1	0.241	0.238	0.236	0.233	0.230	0.228	0.225	0.222	0.219	0.217	0.214
X'2	0.253	0.254	0.255	0.256	0.258	0.259	0.260	0.262	0.263	0.265	0.266
X'2	0.236	0.233	0.230	0.226	0.222	0.219	0.214	0.210	0.205	0.200	0.195
X1	1.000	1.000	0.643	0.465	0.375	0.322	0.286	0.262	0.242	0.227	0.214
X2	-	-	-	-	-	-	0.428	0.356	0.315	0.287	0.266
X'2	-	-	-	-	-	-	0.333	0.269	0.235	0.211	0.195
rA1	max.	0.446	0.441	0.436	0.430	0.425	0.420	0.414	0.409	0.404	0.398
	min.	-0.054	-0.009	0.036	0.080	0.125	0.170	0.214	0.259	0.304	0.348
rB1	max.	0.621	0.619	0.618	0.617	0.615	0.614	0.613	0.611	0.610	0.607
	min.	-0.013	0.049	0.111	0.173	0.235	0.297	0.359	0.421	0.483	0.545
rB2	max.	0.603	0.596	0.589	0.583	0.576	0.569	0.563	0.556	0.549	0.542
	min.	-0.067	-0.007	0.054	0.114	0.174	0.234	0.295	0.355	0.415	0.475
rC2	max.	0.571	0.561	0.550	0.539	0.529	0.518	0.507	0.497	0.486	0.475
	min.	-0.107	-0.050	0.007	0.064	0.122	0.179	0.236	0.293	0.350	0.407

MAS DE 4 TRAMOS

PARA TRAMOS INTERNOS

(El primer y segundo tramos se calculan como en el caso de 4 tramos)



MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$

ABCISAS

$$x_1 = x_1 \cdot l$$

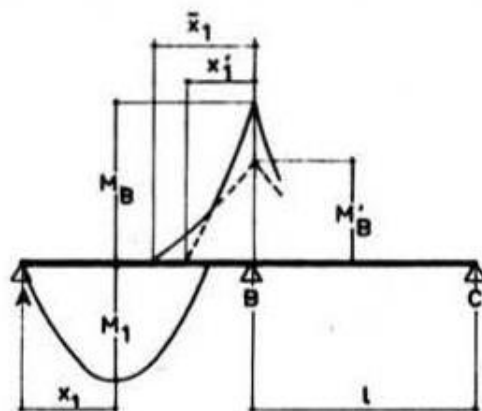
$$S_1 = s_1 \cdot l$$

CORTANTES

$$V_1 = r_1 \cdot p \cdot l$$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
tramo	mn	12.00	12.63	13.33	14.12	15.00	16.00	17.14	18.46	20.00	21.82
	m'n	-24.00	-30.00	-40.00	-60.00	-120.0	?	120.0	60.00	40.00	24.00
apoyo	mN	8.785	9.027	9.283	9.553	9.840	10.14	10.46	10.81	11.18	11.57
	m'N	24.00	21.82	20.00	18.46	17.14	16.00	15.00	14.12	13.33	12.63
SN	0.817	0.796	0.775	0.753	0.730	0.707	0.683	0.658	0.632	0.605	0.577
X'N	0.242	0.239	0.236	0.233	0.231	0.228	0.225	0.221	0.218	0.214	0.211
XN	-	-	-	-	-	-	0.500	0.333	0.282	0.250	0.228
rN	max.	0.592	0.582	0.573	0.564	0.555	0.546	0.537	0.528	0.518	0.509
	min.	-0.092	-0.032	0.027	0.086	0.145	0.204	0.263	0.323	0.382	0.441

Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme
MOMENTOS DE TRAMO Y APOYO - ABSCISAS - CORTANTES



2 TRAMOS

MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$

$$M_B = \frac{p \cdot l^2}{8}$$

ABSCISAS

$$x_1 = X_1 \cdot l$$

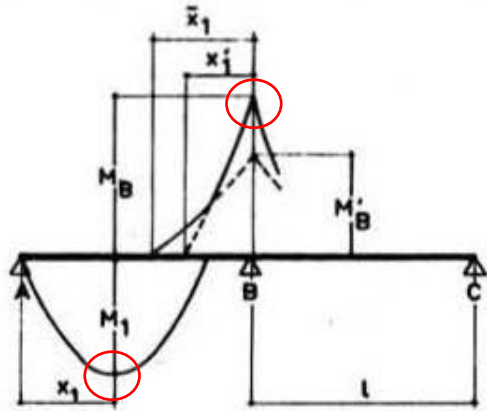
$$x'_1 = 0.25 \cdot l$$

CORTANTES

$$V_1 = r_1 \cdot p \cdot l$$

g/p =		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B		16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X1		0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X1		1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331	0.375
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562	0.625

Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme
MOMENTOS DE TRAMO Y APOYO - ABSCISAS - CORTANTES



2 TRAMOS

MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$

$$M_B = \frac{p \cdot l^2}{8}$$

ABSCISAS

$$x_1 = X_1 \cdot l$$

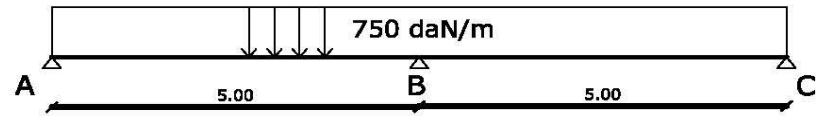
$$x'_1 = 0.25 \cdot l$$

CORTANTES

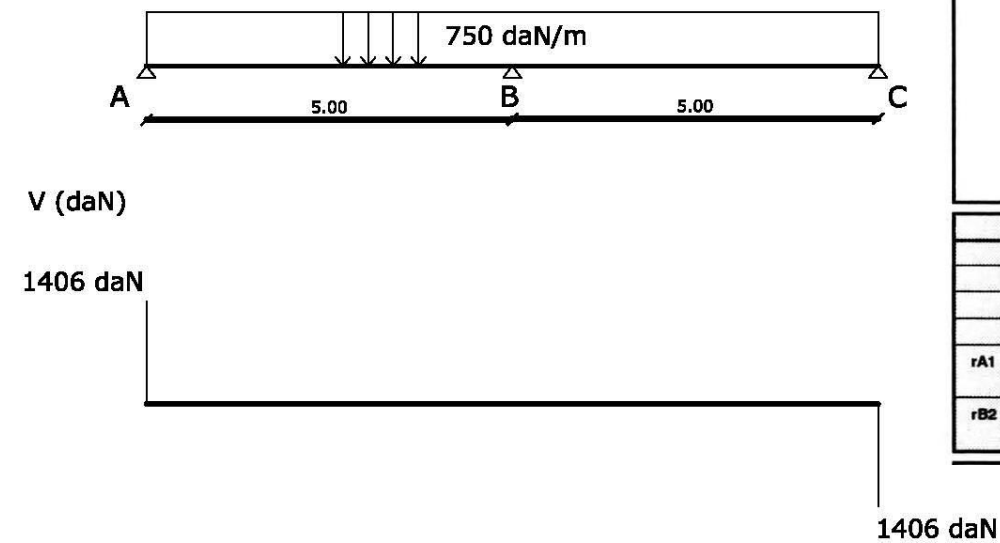
$$V_1 = r_1 \cdot p \cdot l$$

g/p =		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B		16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X1		0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X1		1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331	0.375
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562	0.625

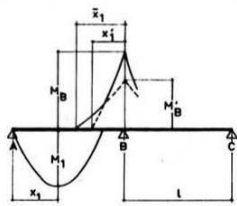
EJEMPLO: VIGA DE 2 TRAMOS



EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme
MOMENTOS DE TRAMO Y APOYO - ABCISAS - CORTANTES



2 TRAMOS

MOMENTOS

$$M_A = \frac{p \cdot l^2}{8}$$

$$M_B = \frac{p \cdot l^2}{8}$$

ABSCISAS

$$x_1 = X_1 \cdot l$$

$$x'_1 = 0.25 \cdot l$$

CORTANTES

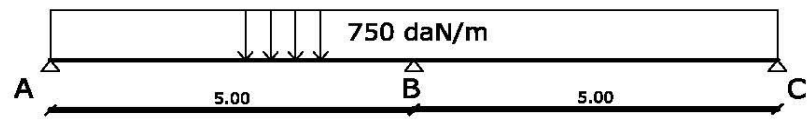
$$V_1 = r_1 \cdot p \cdot l$$

g/p =		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B		16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X _A		0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X ₁		1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331	0.375
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562	0.625

$$V(A) = r_1 \cdot p \cdot l$$

$$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$$

EJEMPLO: VIGA DE 2 TRAMOS

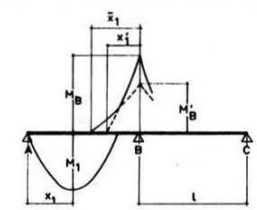


V (daN)

1406 daN

1406 daN

Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme
MOMENTOS DE TRAMO Y APOYO - ABSCISAS - CORTANTES



2 TRAMOS

MOMENTOS

$$M_A = \frac{p \cdot l^2}{8}$$

$$M_B = \frac{p \cdot l^2}{8}$$

ABSCISAS

$$x_1 = X_1 \cdot l$$

$$x'_1 = 0.25 \cdot l$$

CORTANTES

$$V_1 = r_1 \cdot p \cdot l$$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B	16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X ₁	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X ₁	1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562

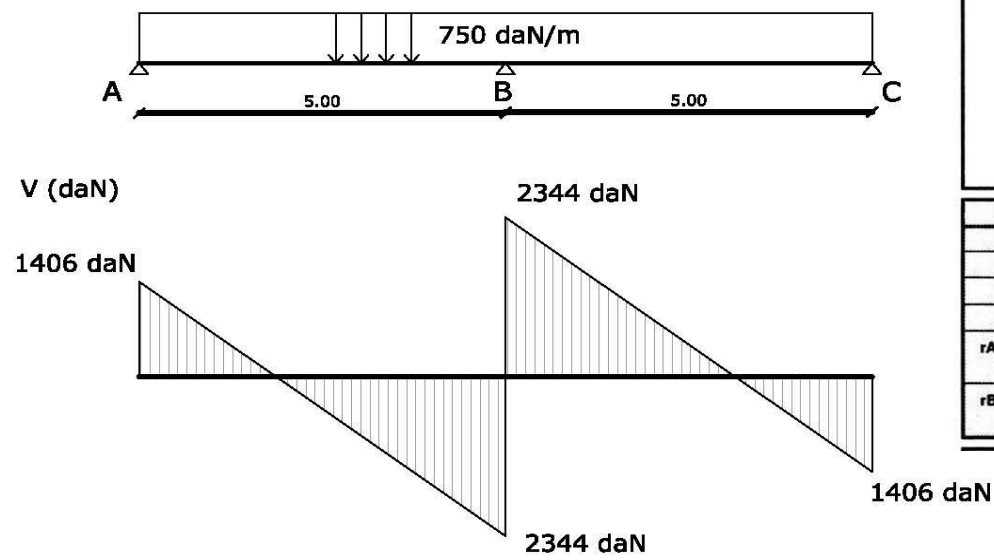
$$V(A) = r_1 \cdot p \cdot l$$

$$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$$

$$V(B) = r_1 \cdot p \cdot l$$

$$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$$

EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme

MOMENTOS DE TRAMO Y APOYO - ABCISAS - CORTANTES

2 TRAMOS

MOMENTOS

$M_1 = \frac{p \cdot l^2}{8}$

$M_B = \frac{p \cdot l^2}{8}$

ABSCISAS

$x_1 = X_1 \cdot l$

$x'_1 = 0.25 \cdot l$

CORTANTES

$V_1 = r_1 \cdot p \cdot l$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
m1	10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22	
m'B	16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00	
X1	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375	
X1	1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250	
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331	0.375
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562	0.625

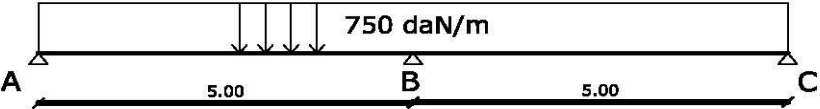
$V(A) = r_1 \cdot p \cdot l$

$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$

$V(B) = r_1 \cdot p \cdot l$

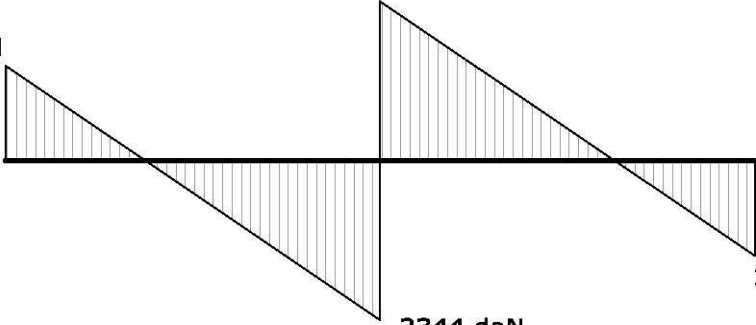
$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$

EJEMPLO: VIGA DE 2 TRAMOS



V (daN)

1406 daN



2344 daN

2344 daN

M (daNm)



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme
MOMENTOS DE TRAMO Y APOYO - ABSCISAS - CORTANTES

2 TRAMOS

MOMENTOS
 $M_1 = \frac{p \cdot l^2}{8}$
 $M_B = \frac{p \cdot l^2}{8}$

ABSCISAS
 $x_1 = X_1 \cdot l$
 $x'_1 = 0.25 \cdot l$

CORTANTES
 $V_1 = r_1 \cdot p \cdot l$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B	16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X1	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X1	1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562

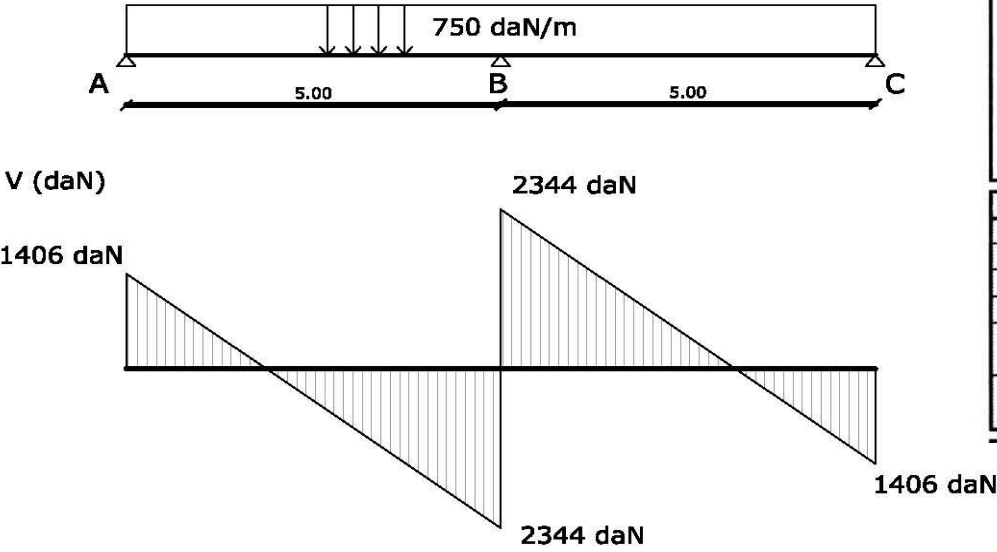
$V(A) = r_1 \cdot p \cdot l$

$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$

$V(B) = r_1 \cdot p \cdot l$

$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$

EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme

MOMENTOS DE TRAMO Y APOYO - ABSCISAS - CORTANTES

2 TRAMOS

MOMENTOS

$M_1 = \frac{p \cdot l^2}{8}$

$M_B = \frac{p \cdot l^2}{8}$

ABSCISAS

$x_1 = X_1 \cdot l$

$x'_1 = 0.25 \cdot l$

CORTANTES

$V_1 = r_1 \cdot p \cdot l$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B	16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X ₁	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X ₁	1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562

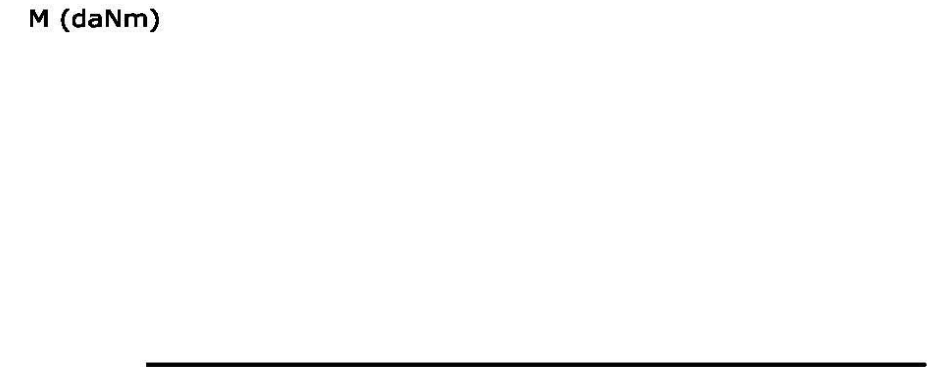
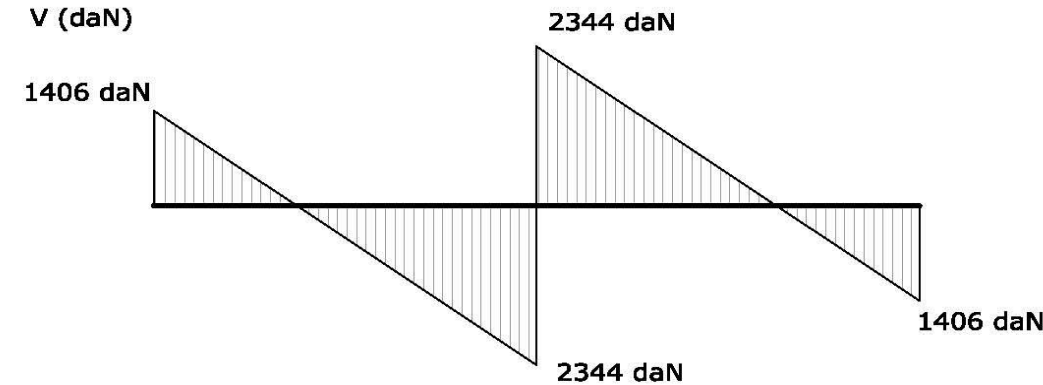
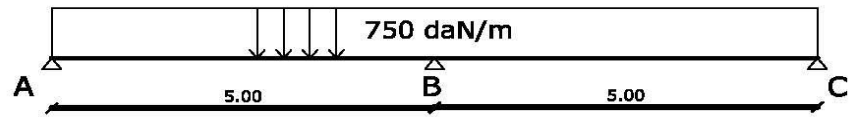
$V(A) = r_1 \cdot p \cdot l$

$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$

$V(B) = r_1 \cdot p \cdot l$

$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$

EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme

MOMENTOS DE TRAMO Y APOYO - ABSCISAS - CORTANTES

2 TRAMOS

MOMENTOS

$M_1 = \frac{p \cdot l^2}{8}$

$M_B = \frac{p \cdot l^2}{8}$

ABSCISAS

$x_1 = X_1 \cdot l$

$x'_1 = 0.25 \cdot l$

CORTANTES

$V_1 = r_1 \cdot p \cdot l$

g/p =		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B		16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X ₁		0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X ₁		1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331	0.375
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562	0.625

$V(A) = r_1 \cdot p \cdot l$

$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$

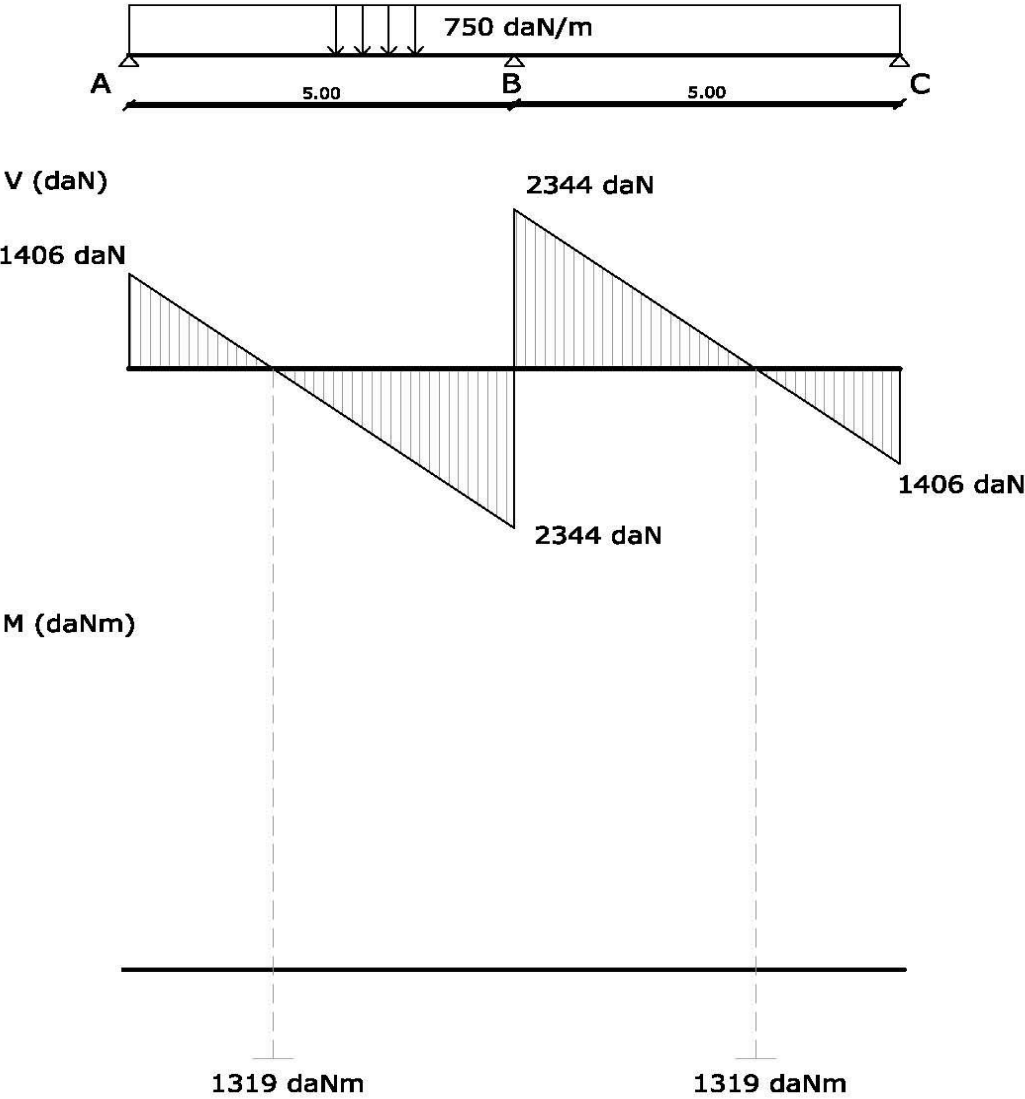
$V(B) = r_1 \cdot p \cdot l$

$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$

$M_1 = \frac{p \cdot l^2}{8}$

$M_1 = \frac{750 \cdot 5^2}{8} = 1319 \text{ daNm}$

EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme

MOMENTOS DE TRAMO Y APOYO - ABSCISAS - CORTANTES

2 TRAMOS

MOMENTOS

$M_1 = \frac{p \cdot l^2}{8}$

$M_B = \frac{p \cdot l^2}{8}$

ABSCISAS

$x_1 = X_1 \cdot l$

$x'_1 = 0.25 \cdot l$

CORTANTES

$V_1 = r_1 \cdot p \cdot l$

g/p =		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B		16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X _A		0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X _I		1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331	0.375
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562	0.625

$V(A) = r_1 \cdot p \cdot l$

$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$

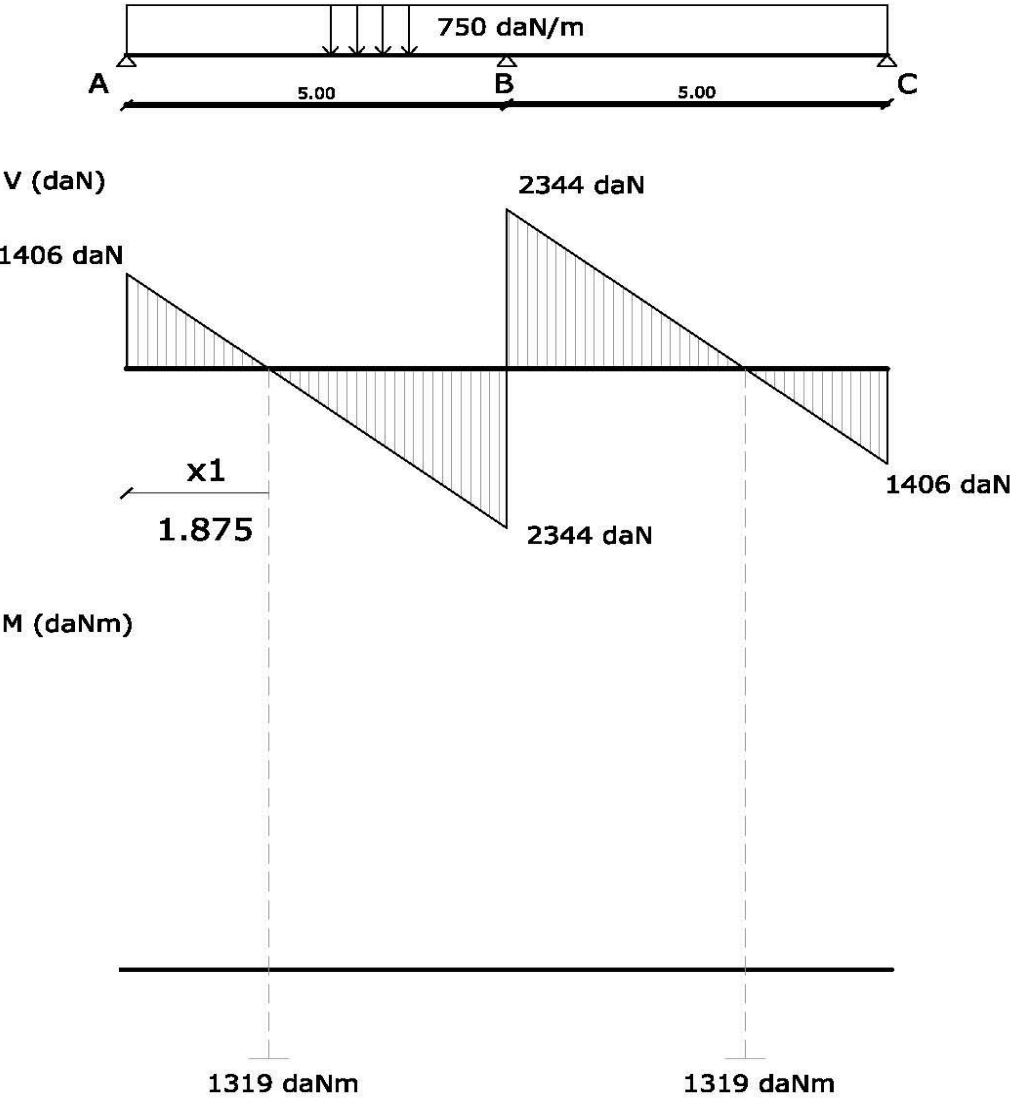
$V(B) = r_1 \cdot p \cdot l$

$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$

$M_1 = \frac{p \cdot l^2}{8}$

$M_1 = \frac{750 \cdot 5^2}{14.22} = 1319 \text{ daNm}$

EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme

MOMENTOS DE TRAMO Y APOYO - ABCISAS - CORTANTES

2 TRAMOS		ABSCISAS	CORTANTES
$M_1 = \frac{p \cdot l^2}{8}$		$x_1 = X_1 \cdot l$	$V_1 = r_1 \cdot p \cdot l$
$M_B = \frac{p \cdot l^2}{8}$		$x'_1 = 0.25 \cdot l$	

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B	16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X ₁	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X ₁	1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562

$V(A) = r_1 \cdot p \cdot l$

$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$

$V(B) = r_1 \cdot p \cdot l$

$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$

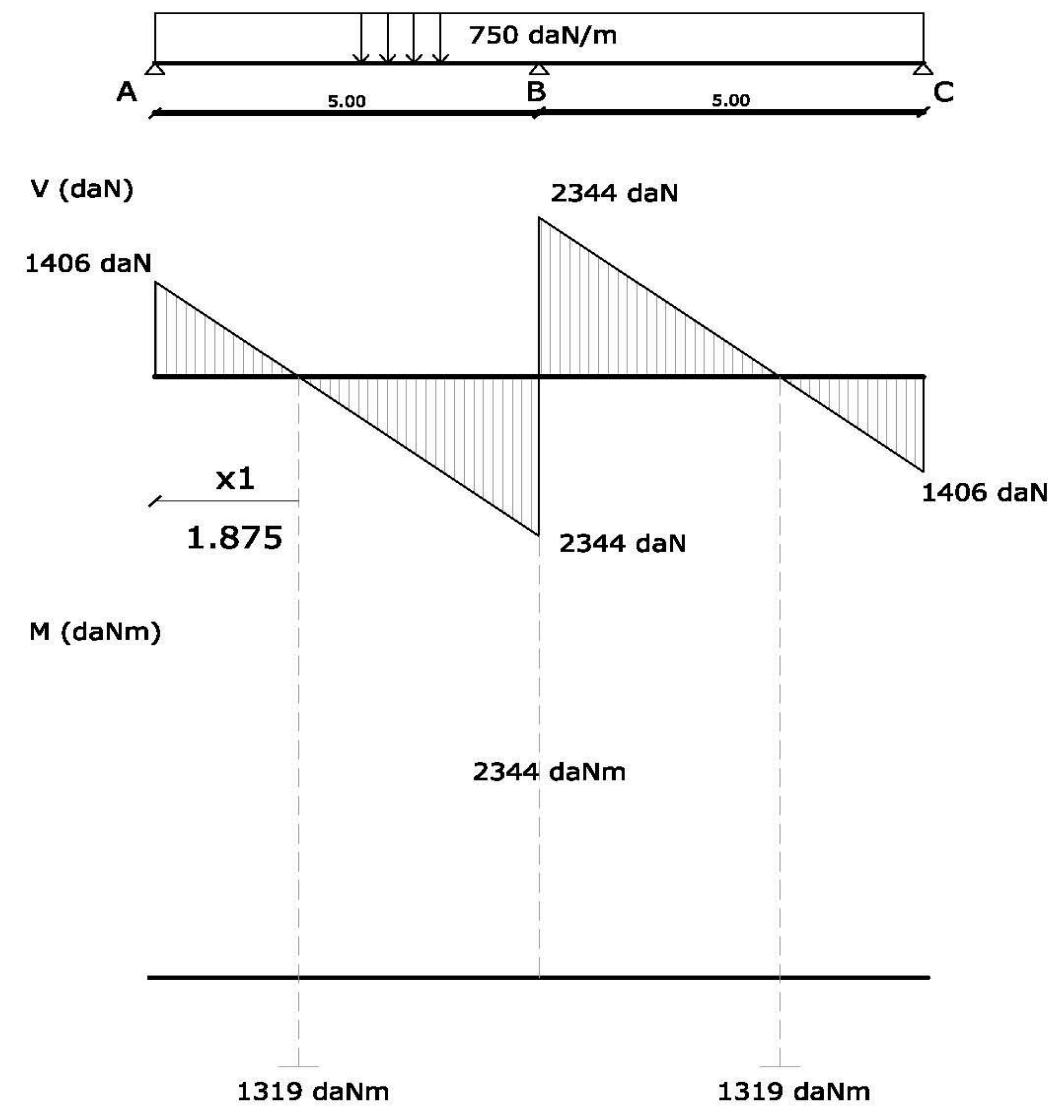
$x_1 = X_1 \cdot l$

$x_1 = 0.375 \cdot 5 = 1.875 \text{ m}$

$M_1 = \frac{p \cdot l^2}{8}$

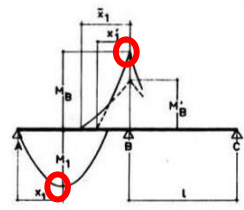
$M_1 = \frac{750 \cdot 5^2}{14.22} = 1319 \text{ daNm}$

EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme

MOMENTOS DE TRAMO Y APOYO - ABCISAS - CORTANTES



2 TRAMOS

MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$

$$M_B = \frac{p \cdot l^2}{8}$$

ABCISAS

$$x_1 = X_1 \cdot l$$

$$x'_1 = 0.25 \cdot l$$

CORTANTES

$$V_1 = r_1 \cdot p \cdot l$$

g/p =		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B		16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X ₁		0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X ₁		1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331	0.375
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562	0.625

$$V(A) = r_1 \cdot p \cdot l$$

$$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$$

$$V(B) = r_1 \cdot p \cdot l$$

$$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$$

$$x_1 = X_1 \cdot l$$

$$x_1 = 0.375 \cdot 5 = 1.875 \text{ m}$$

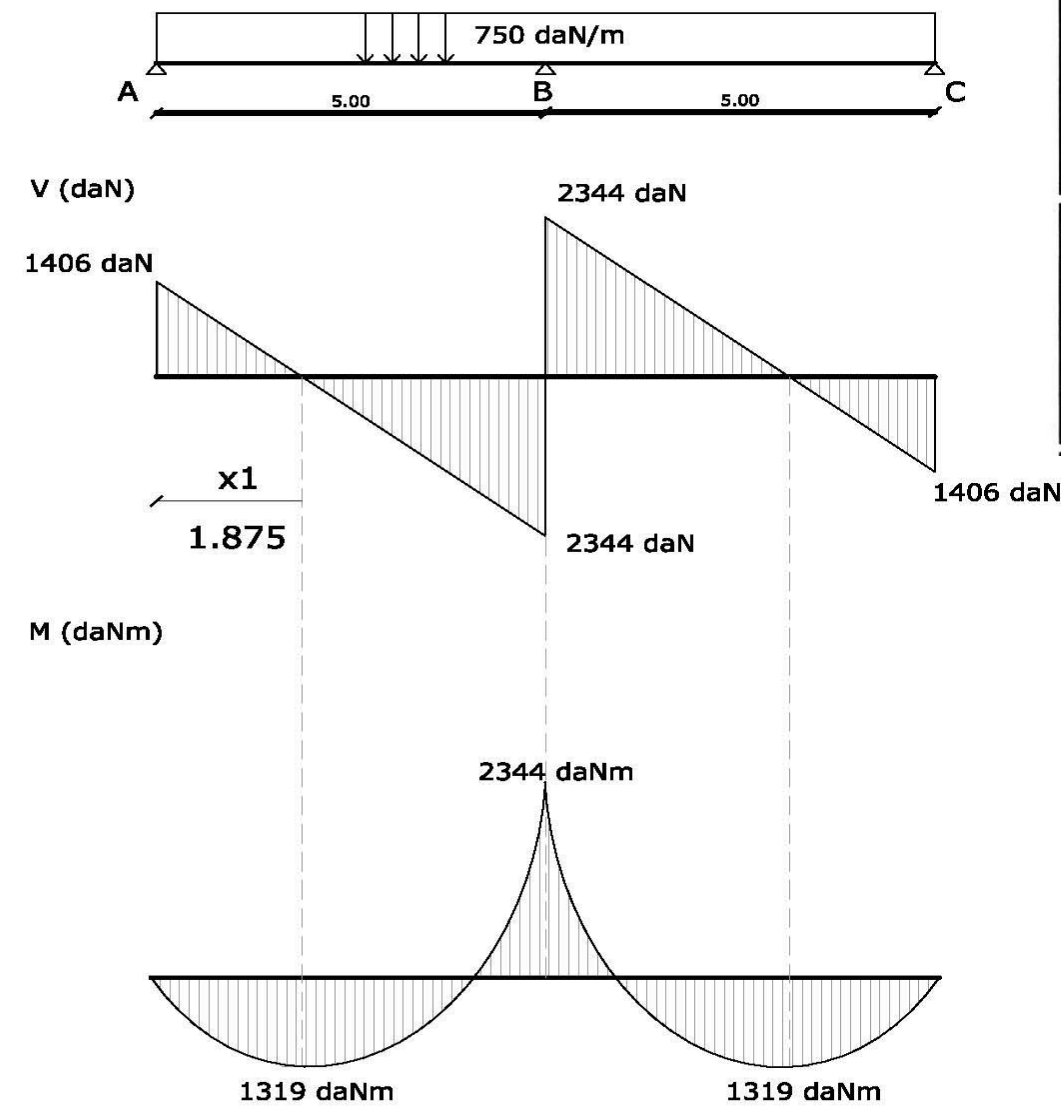
$$M_1 = \frac{p \cdot l^2}{8}$$

$$M_1 = \frac{750 \cdot 5^2}{14.22} = 1319 \text{ daNm}$$

$$M_B = \frac{p \cdot l^2}{8}$$

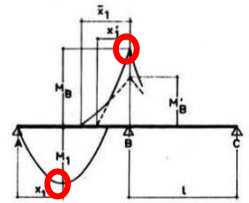
$$M_1 = \frac{750 \cdot 5^2}{8} = 2344 \text{ daNm}$$

EJEMPLO: VIGA DE 2 TRAMOS



Vigas continuas con inercia constante - Tramos iguales - Igual carga permanente y eventual uniforme

MOMENTOS DE TRAMO Y APOYO - ABCISAS - CORTANTES



2 TRAMOS

MOMENTOS

$$M_1 = \frac{p \cdot l^2}{8}$$
$$M_B = \frac{p \cdot l^2}{8}$$

ABCISAS

$$x_1 = X_1 \cdot l$$
$$x'_1 = 0.25 \cdot l$$

CORTANTES

$$V_1 = r_1 \cdot p \cdot l$$

g/p =	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	10.45	10.75	11.07	11.40	11.75	12.12	12.50	12.90	13.32	13.76	14.22
m'B	16.00	14.54	13.33	12.31	11.43	10.66	10.00	9.41	8.89	8.42	8.00
X1	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381	0.375
X1	1.000	1.000	0.750	0.542	0.438	0.375	0.333	0.304	0.282	0.264	0.250
rA1	max.	0.438	0.431	0.425	0.419	0.413	0.406	0.400	0.394	0.388	0.381
	min.	-0.062	-0.019	0.025	0.069	0.112	0.156	0.200	0.244	0.287	0.331
rB2	max.	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.625
	min.	0.000	0.062	0.125	0.187	0.250	0.312	0.375	0.437	0.500	0.562

$V(A) = r_1 \cdot p \cdot l$

$V(A) = 0.375 \cdot 750 \cdot 5 = 1406 \text{ daN}$

$V(B) = r_1 \cdot p \cdot l$

$V(B) = 0.625 \cdot 750 \cdot 5 = 2344 \text{ daN}$

$x_1 = X_1 \cdot l$

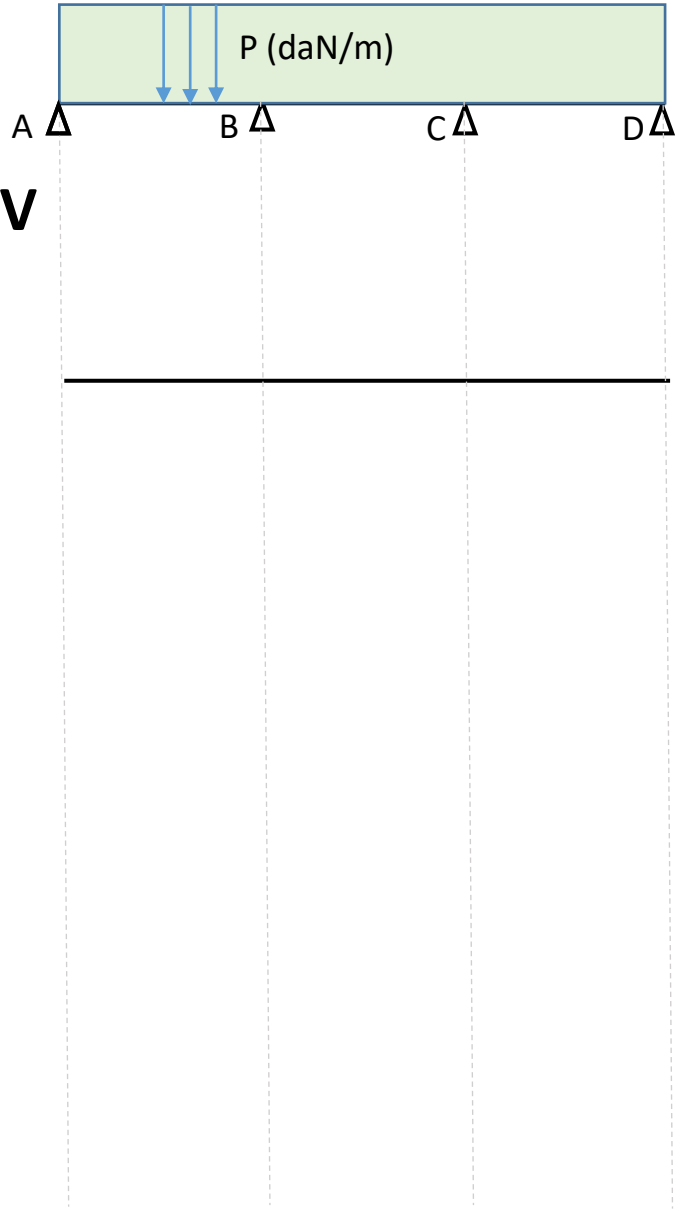
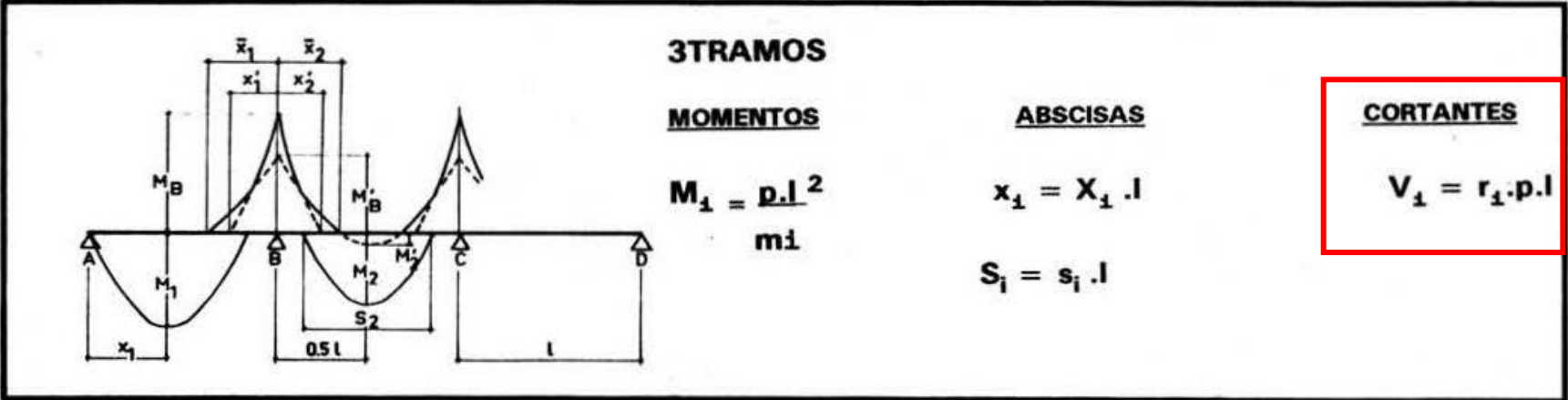
$x_1 = 0.375 \cdot 5 = 1.875 \text{ m}$

$M_1 = \frac{p \cdot l^2}{8}$

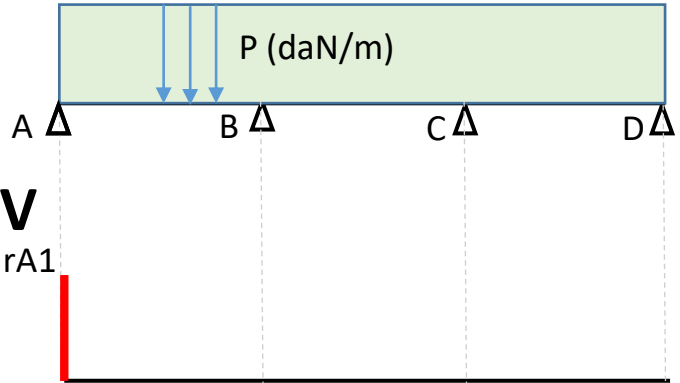
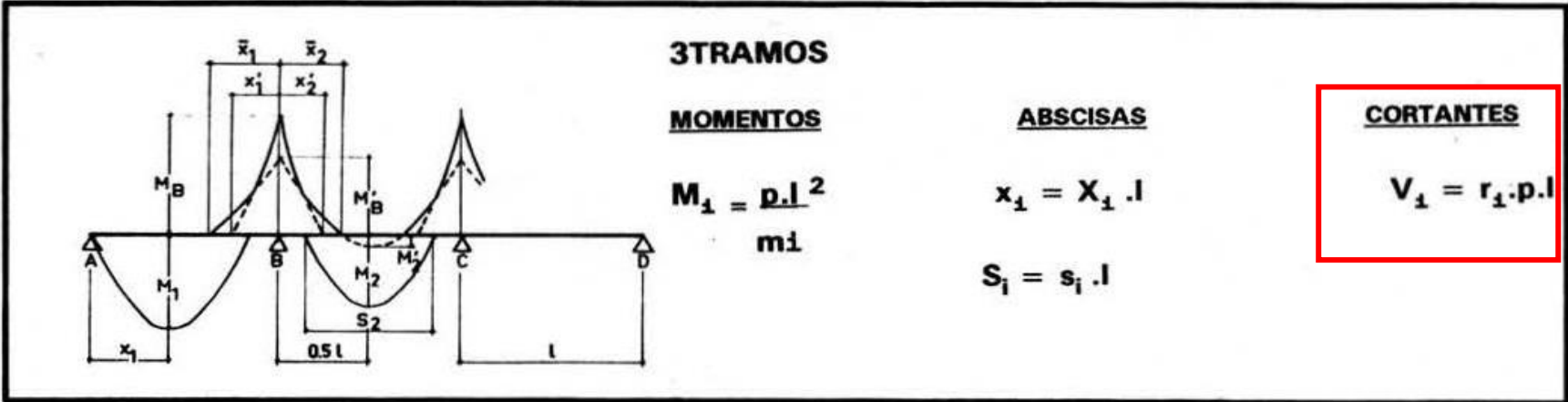
$M_1 = \frac{750 \cdot 5^2}{14.22} = 1319 \text{ daNm}$

$M_B = \frac{p \cdot l^2}{8}$

$M_1 = \frac{750 \cdot 5^2}{8} = 2344 \text{ daNm}$



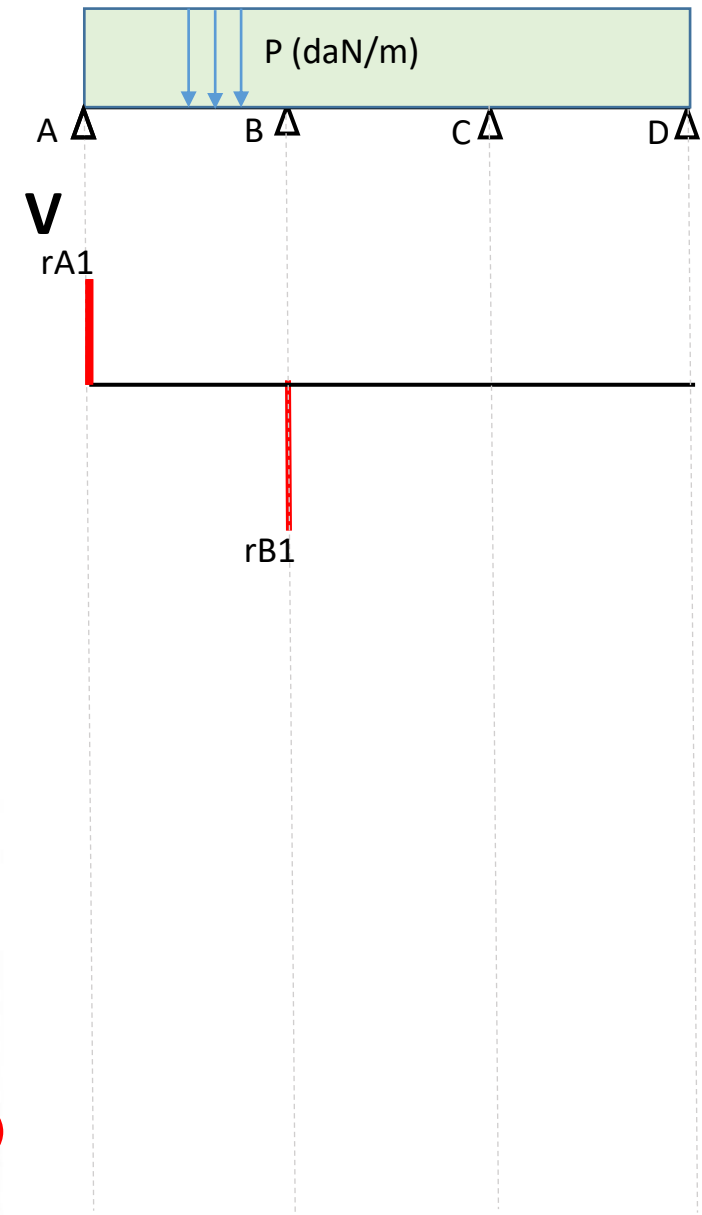
g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
X̄1		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
X̄2		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.508	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500

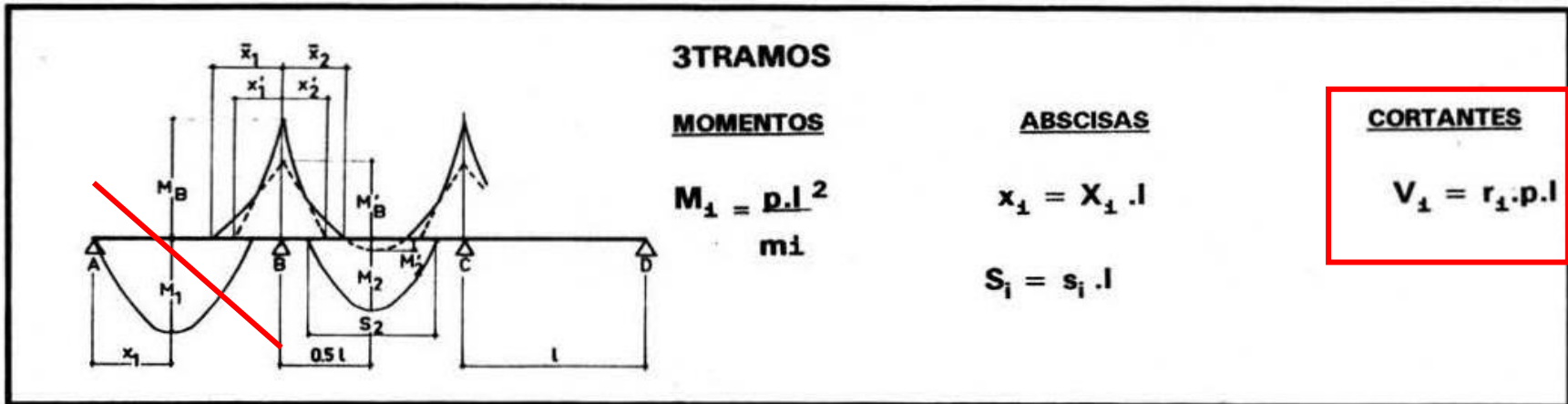


g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
$\hat{X}_1$		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
$\bar{X}_2$		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.508	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500

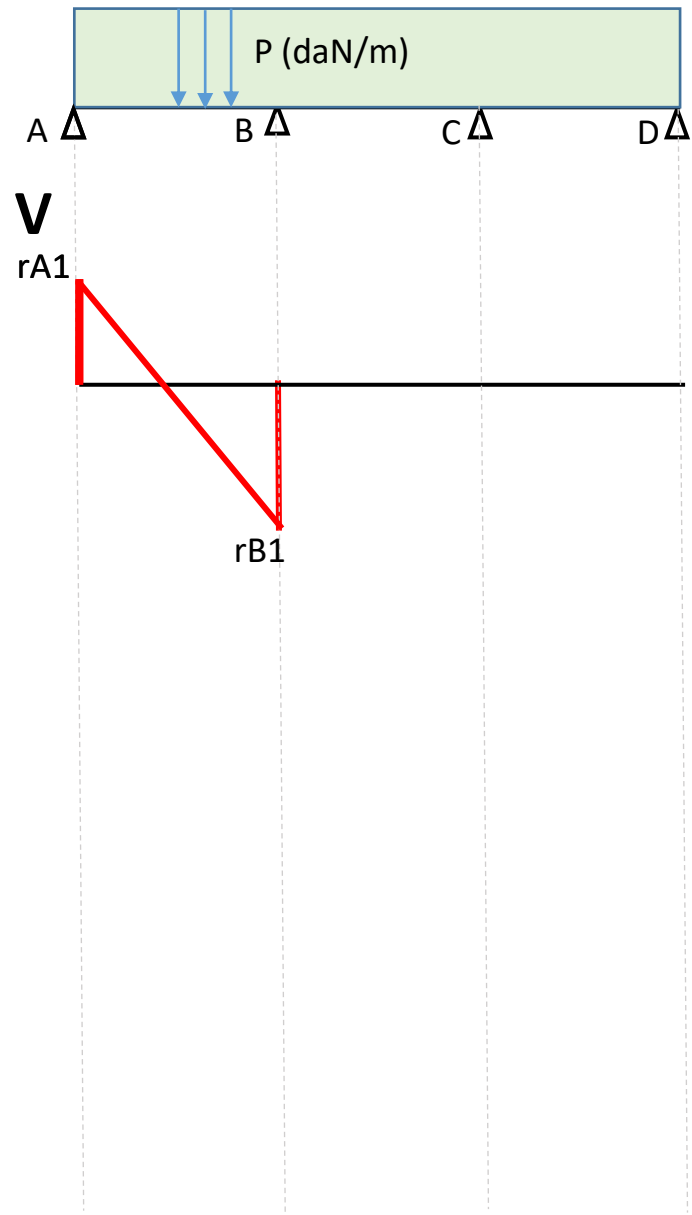


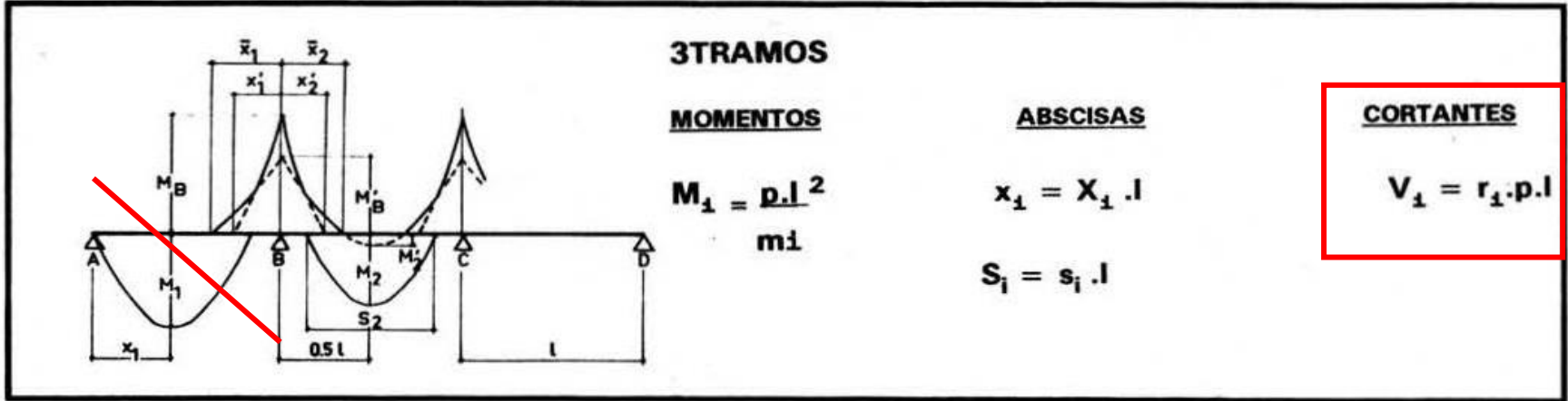
g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
X1-bar		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
X2-bar		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.508	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500



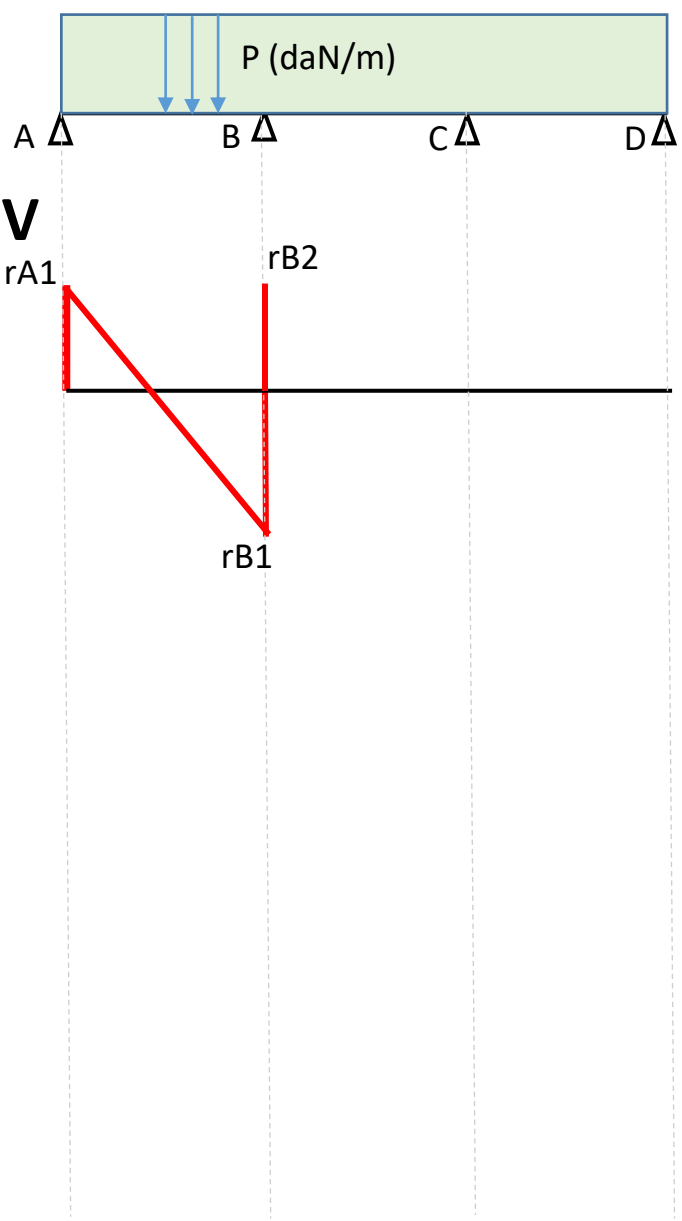


g/p	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2	13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2	-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB	8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B	20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2	0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1	0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2	0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
$\bar{X}1$	1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
$\bar{X}2$	-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442



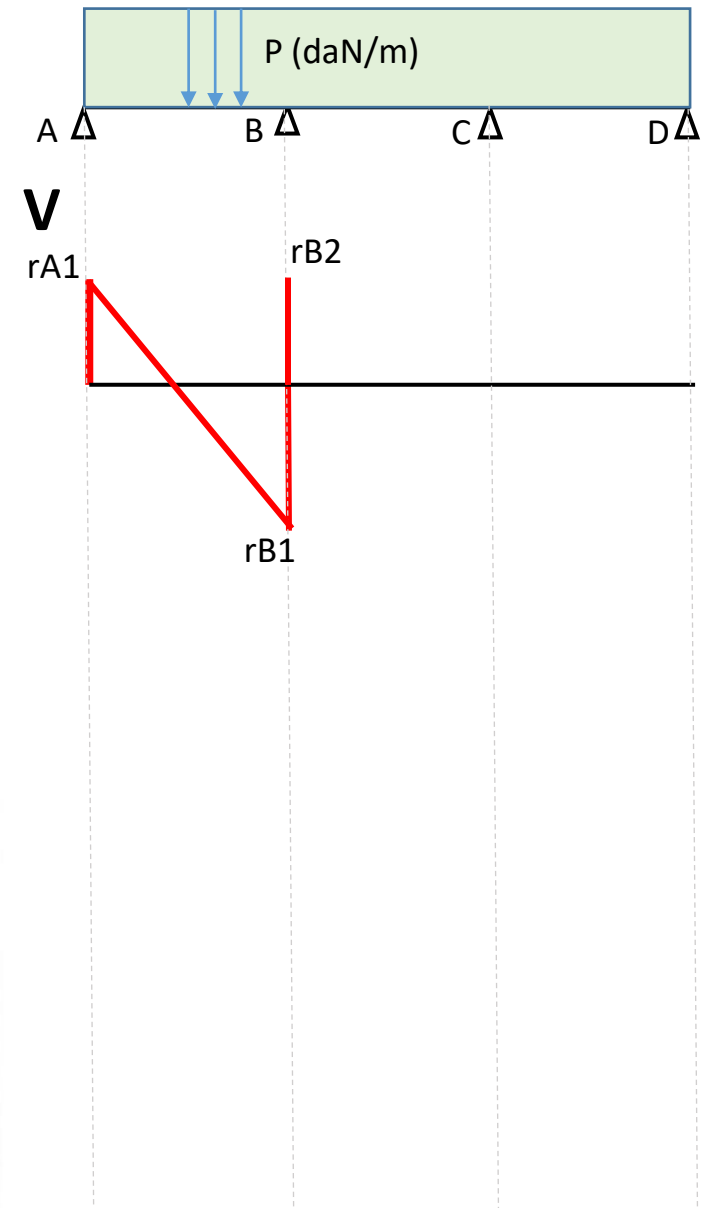


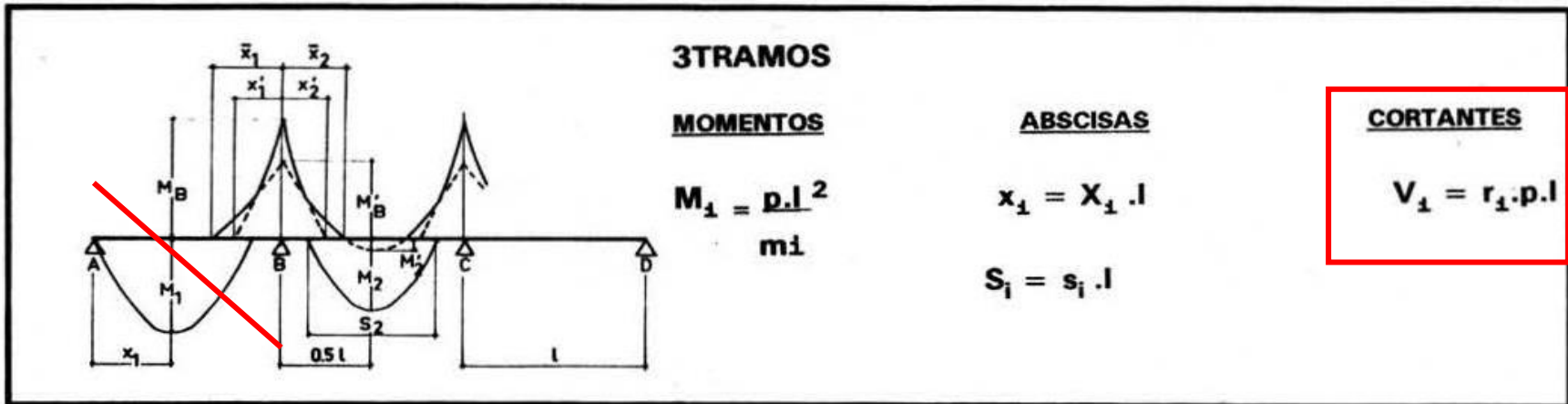
g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
X1-bar		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
X2-bar		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.559	0.550	0.542	0.533	0.525	0.517	0.509	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500



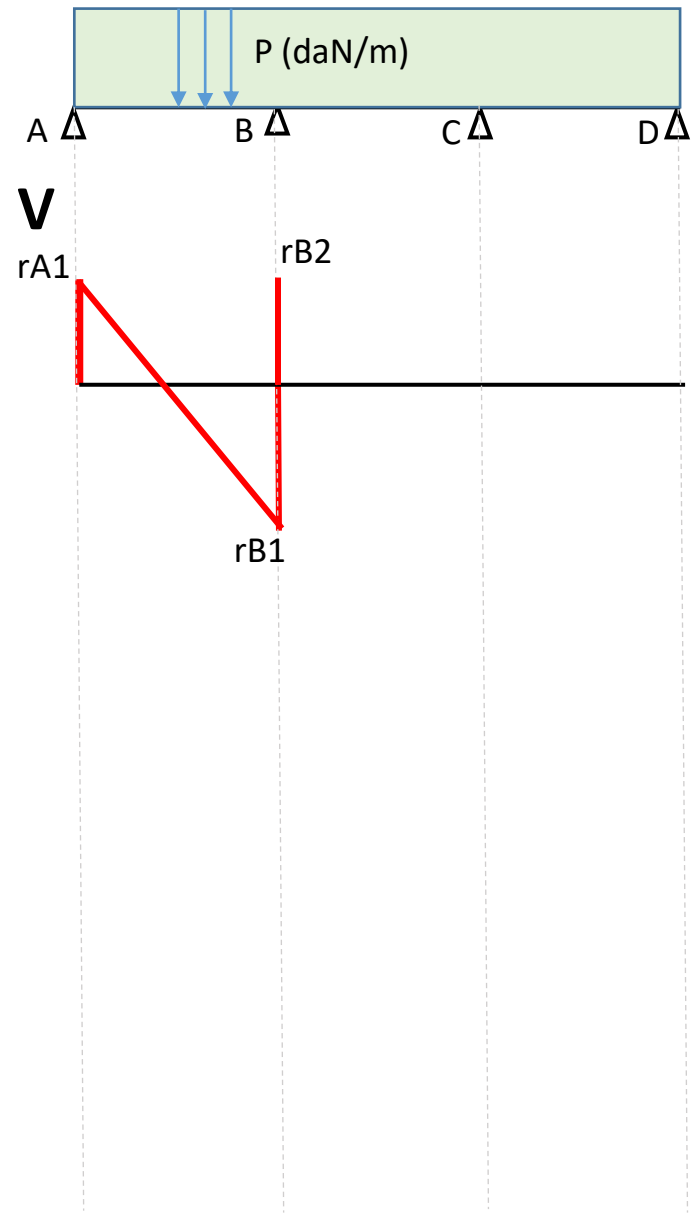


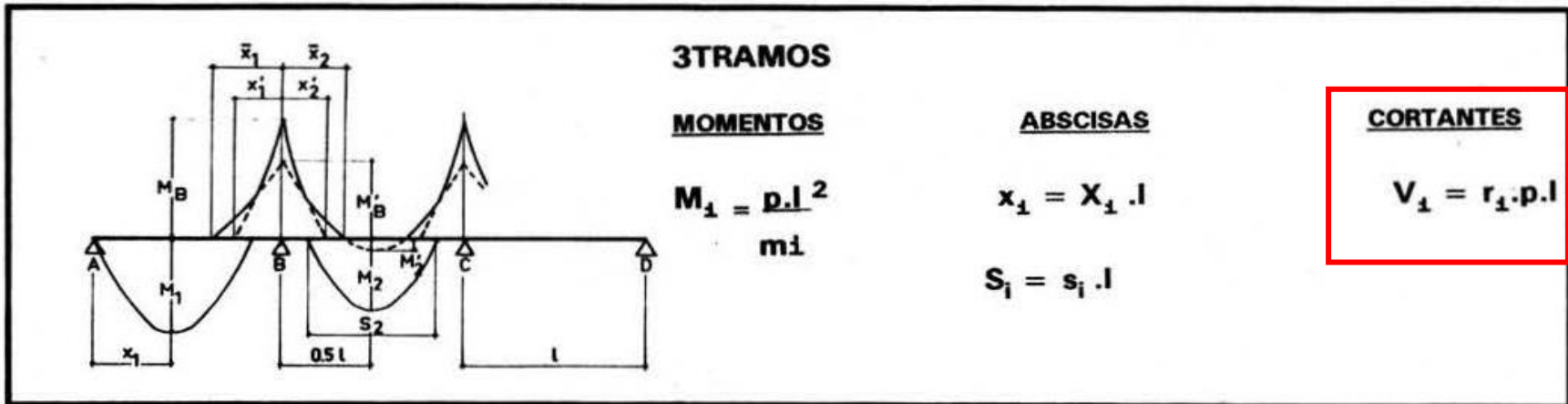
g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
$\bar{X}1$		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
$\bar{X}2$		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.559	0.550	0.542	0.533	0.525	0.517	0.509	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500



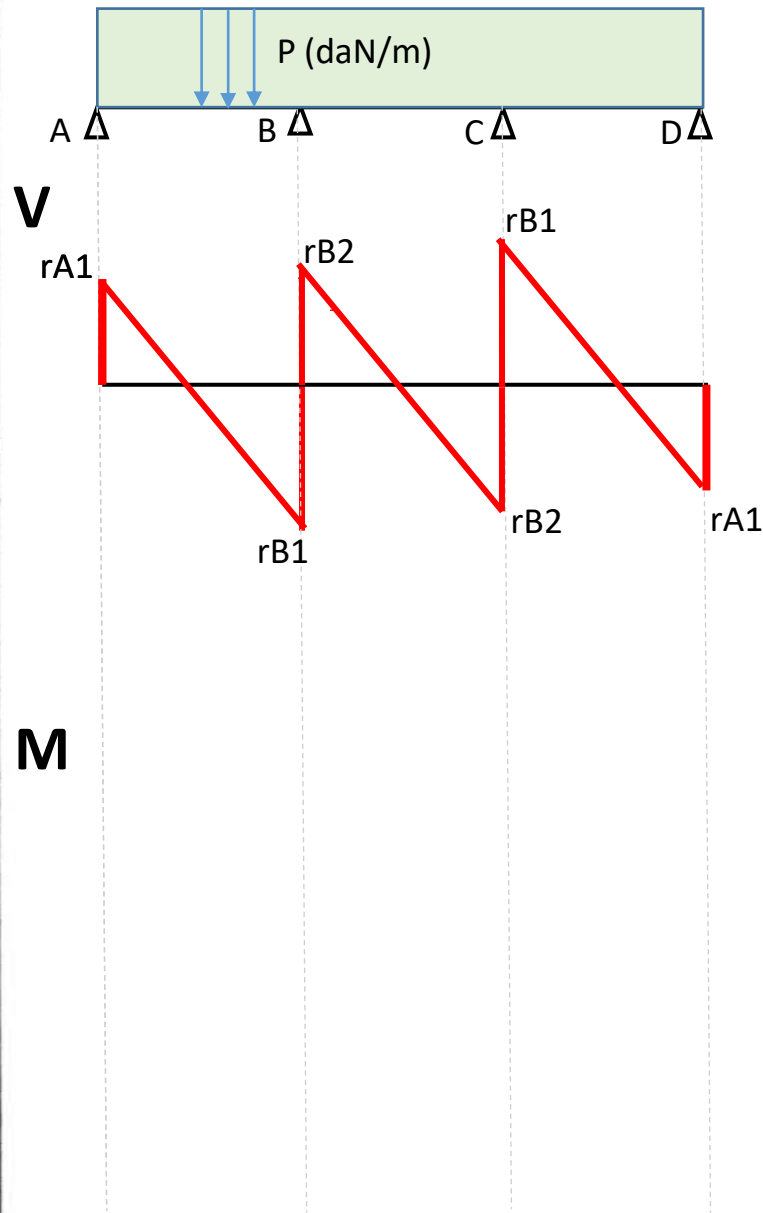


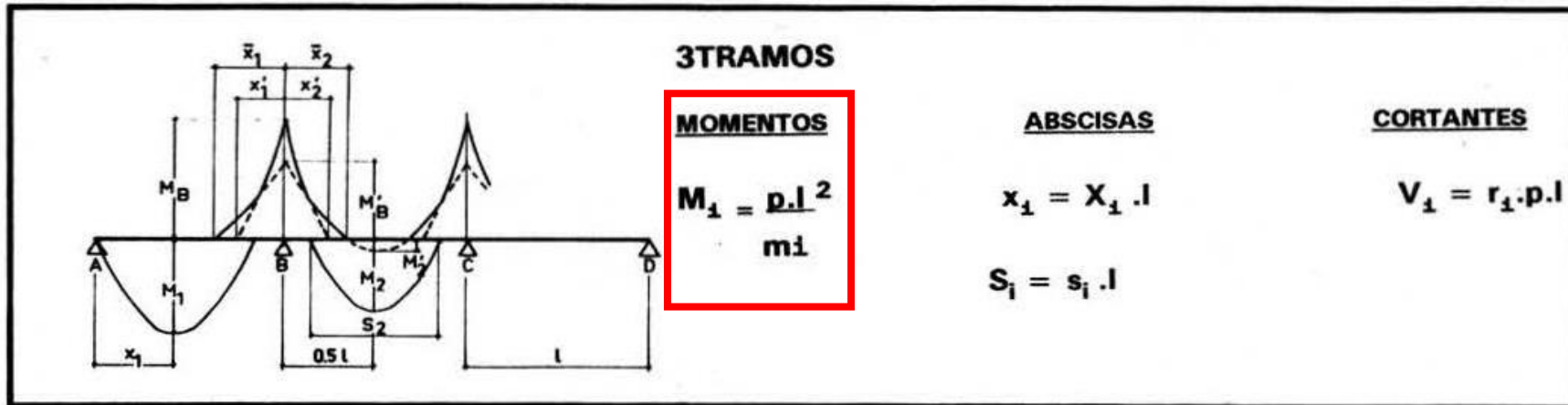
g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
$\bar{X}_1$		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
$\bar{X}_2$		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.559	0.550	0.542	0.533	0.525	0.517	0.509	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500



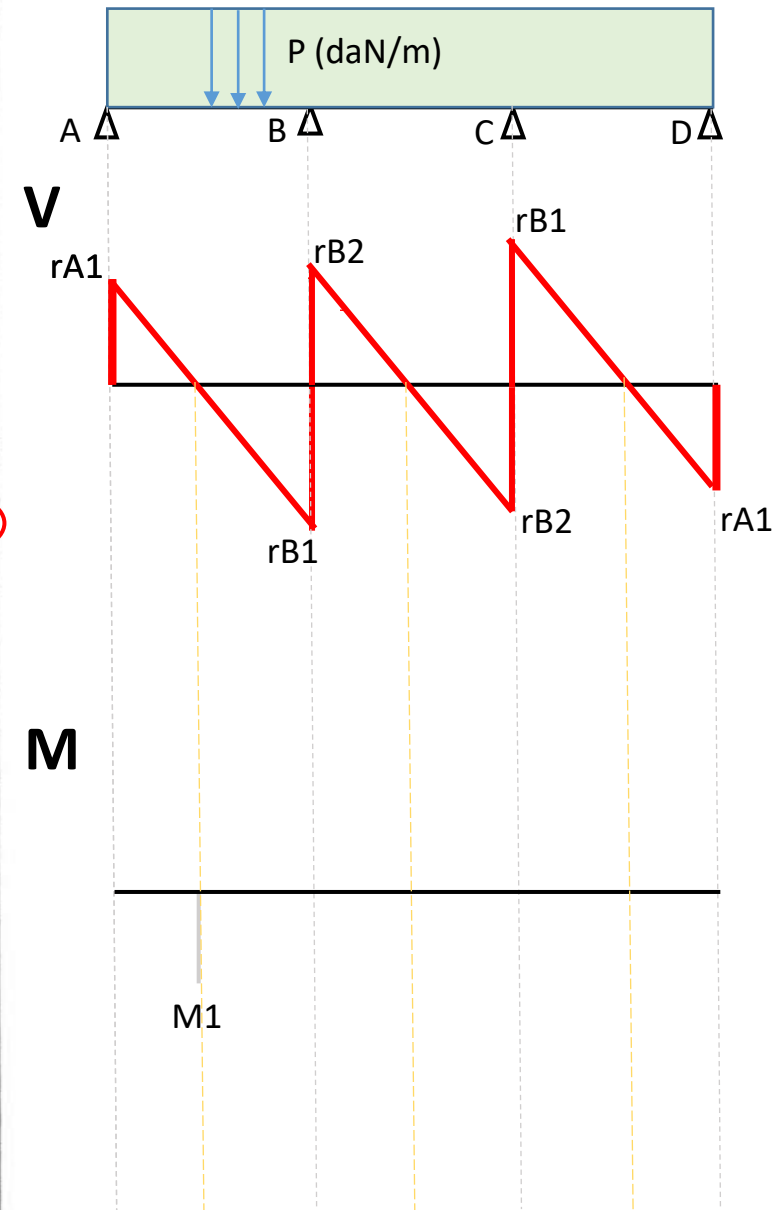


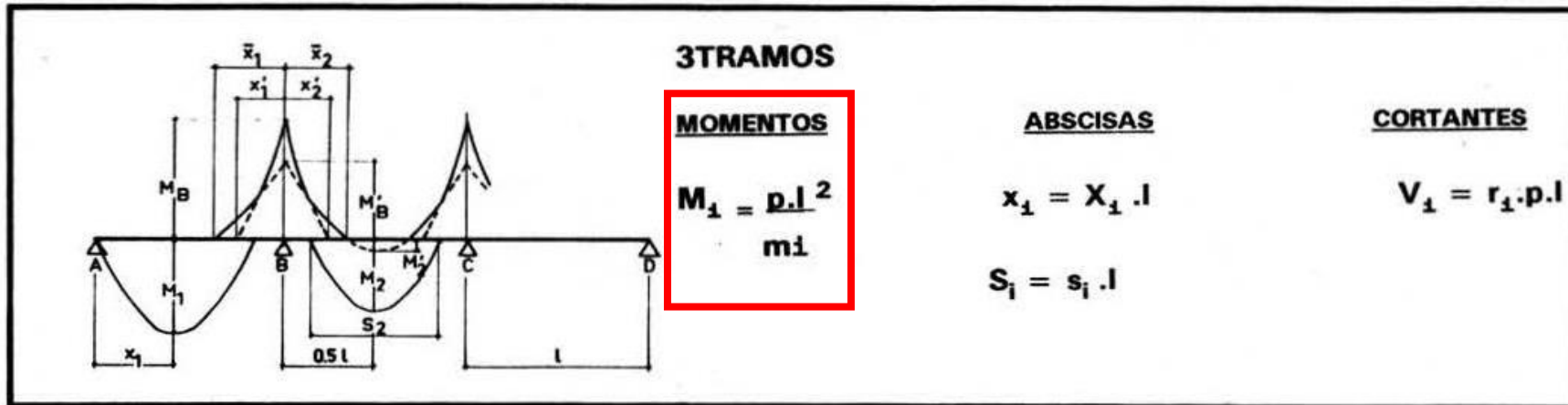
g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
$\hat{X}_1$		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
$\bar{X}_2$		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.508	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500



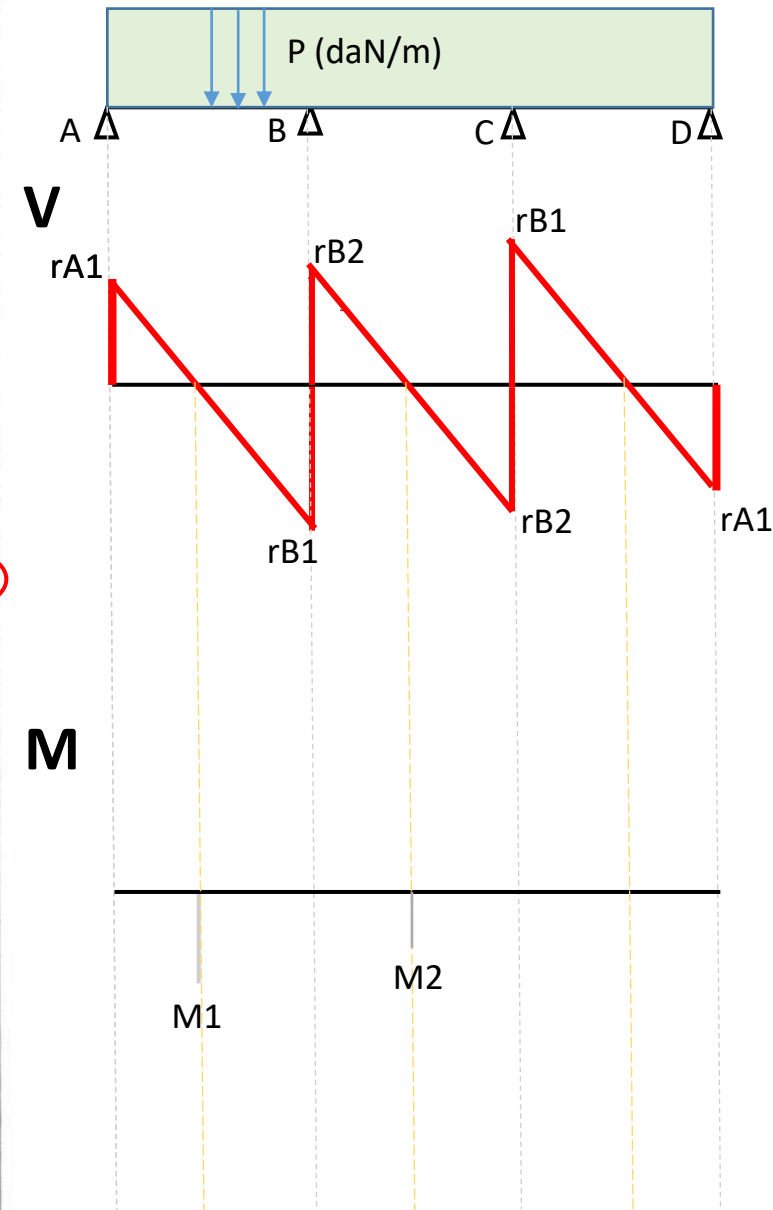


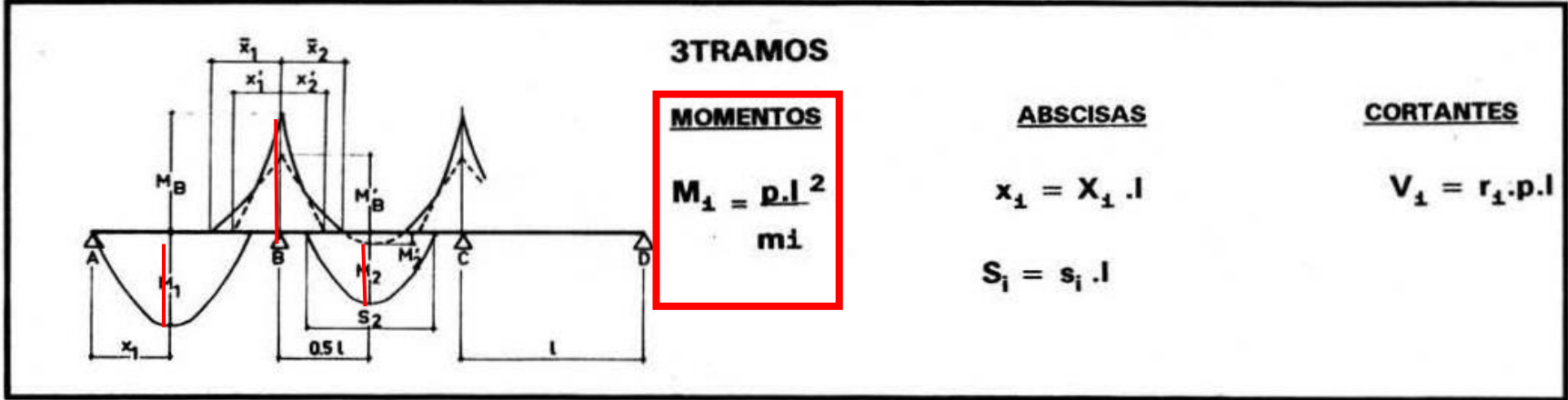
n/p	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	9.66	10.19	10.33	10.37	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2	13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2	-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB	8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B	20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2	0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1	0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2	0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
X1	1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
X2	-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.600
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.500



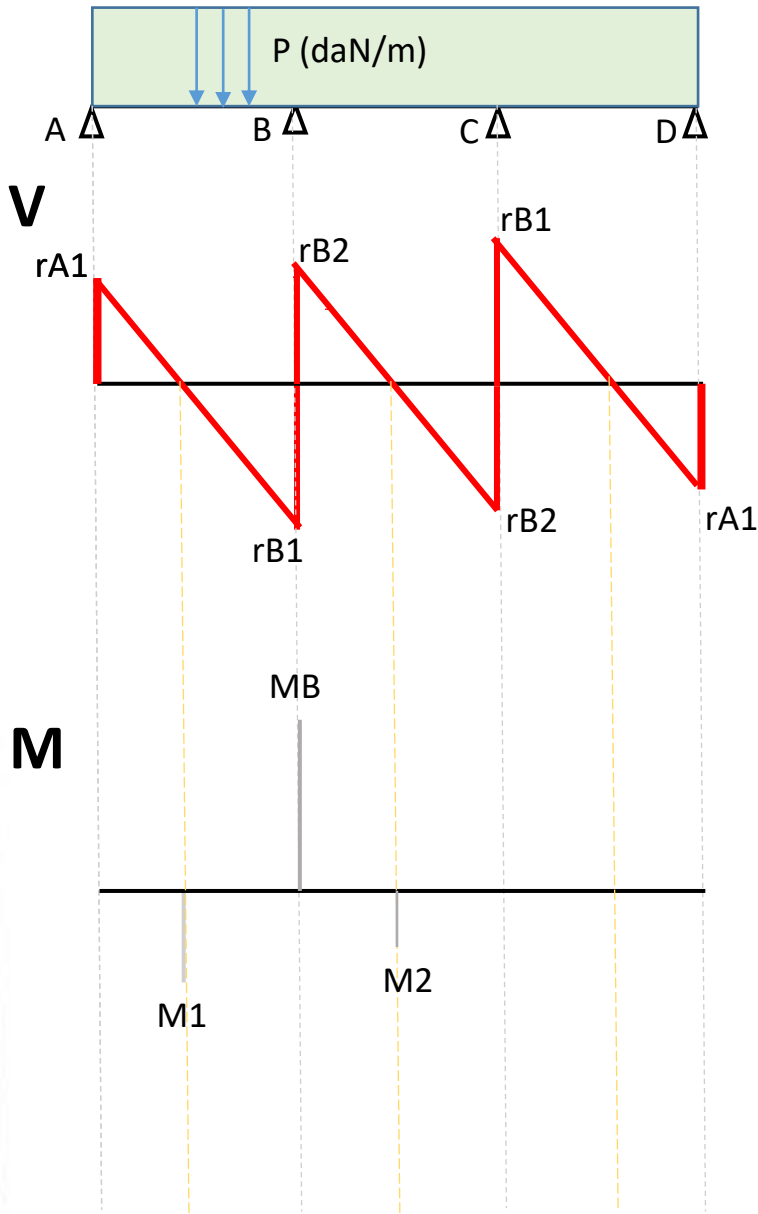


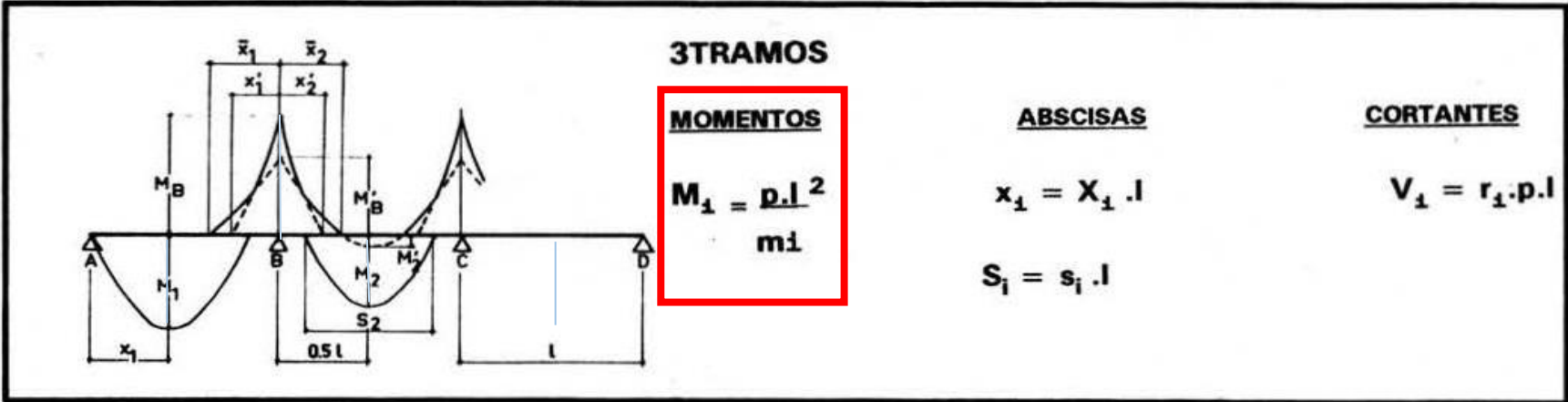
g/p	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2	13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2	-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB	8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B	20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2	0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1	0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2	0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
$\bar{X}_1$	1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
$\bar{X}_2$	-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.600
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.500





g/p		0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1		9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2		13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2		-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB		8.57	8.70	8.82	8.96	9.08	9.22	9.38	9.53	9.68	9.84	10.00
m'B		20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1		0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2		0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1		0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2		0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
X1		1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
X2		-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355	0.400
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602	0.600
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538	0.600
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.508	0.500
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442	0.500





g/p	0.0	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
m1	9.88	10.19	10.33	10.57	10.82	11.07	11.34	11.61	11.90	12.19	12.50
m2	13.33	14.28	15.38	16.67	18.18	20.00	22.22	24.00	24.00	24.00	24.00
m'2	-20.00	-23.53	-28.57	-36.36	-50.00	-80.00	-200.0	400.00	100.00	57.14	40.00
mB	8.57	8.70	8.82	8.96	9.09	9.23	9.38	9.52	9.68	9.84	10.00
m'B	20.00	18.18	16.67	15.38	14.29	13.33	12.50	11.76	11.11	10.53	10.00
X1	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405	0.400
S2	0.775	0.748	0.721	0.693	0.663	0.632	0.600	0.578	0.578	0.578	0.578
X'1	0.233	0.230	0.227	0.223	0.220	0.217	0.213	0.210	0.207	0.203	0.200
X'2	0.255	0.257	0.259	0.261	0.263	0.265	0.267	0.269	0.271	0.273	0.276
X1	1.000	1.000	0.600	0.433	0.350	0.300	0.267	0.243	0.225	0.211	0.200
X2	-	-	-	-	-	-	-	0.416	0.342	0.303	0.276
rA1	max.	0.450	0.445	0.440	0.435	0.430	0.425	0.420	0.415	0.410	0.405
	min.	-0.050	-0.005	0.040	0.085	0.130	0.175	0.220	0.265	0.310	0.355
rB1	max.	0.617	0.615	0.613	0.612	0.610	0.608	0.607	0.605	0.603	0.602
	min.	-0.017	0.045	0.107	0.168	0.230	0.292	0.353	0.415	0.477	0.538
rB2	max.	0.583	0.575	0.567	0.558	0.550	0.542	0.533	0.525	0.517	0.508
	min.	-0.083	-0.025	0.033	0.092	0.150	0.208	0.267	0.325	0.383	0.442

