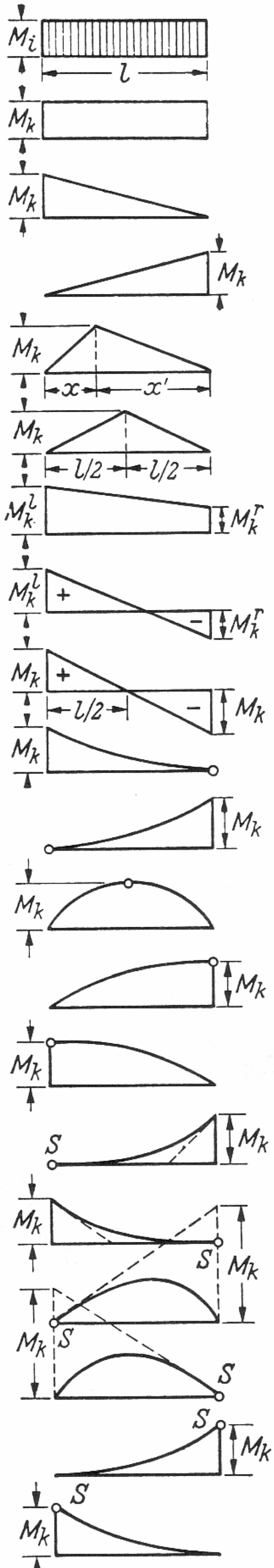
Tafel 11

Formänderungsgrößen $E I_c \delta_{ik} = \int_{(l)} M_i M_k \, dx'$ *und* $E I_c \delta_{ii} = \int_{(l)} M_i^2 \, dx'$

$dx' = dx \, I_c / I$; $l' = l \, I_c / I$



$M_i^2 l'$

$M_i M_k l'$

$1/2 \, M_i M_k l'$

$1/2 \, M_i M_k l'$

$1/2 \, M_i M_k l'$

$1/2 \, M_i M_k l'$

$1/2 \, M_i [M_k^l + M_k^r] \, l'$

$1/2 \, M_i [M_k^l - M_k^r] \, l'$

0

$1/3 \, M_i M_k l'$

$1/3 \, M_i M_k l'$

$2/3 \, M_i M_k l'$

$2/3 \, M_i M_k l'$

$2/3 \, M_i M_k l'$

$1/4 \, M_i M_k l'$

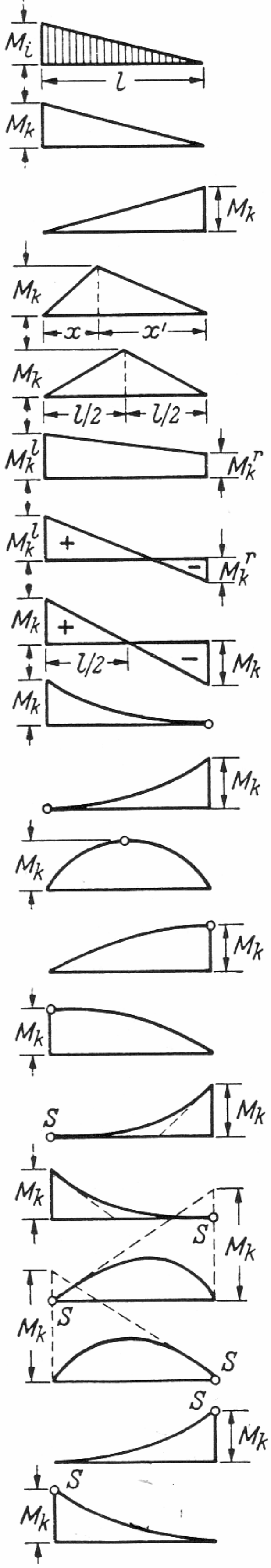
$1/4 \, M_i M_k l'$

$1/4 \, M_i M_k l'$

$1/4 \, M_i M_k l'$

$3/8 \, M_i M_k l'$

$3/8 \, M_i M_k l'$



$1/3 \, M_i^2 l'$

$1/3 \, M_i M_k l'$

$1/6 \, M_i M_k l'$

$1/6 \, M_i M_k l' (1 + \frac{x'}{l})$

$1/4 \, M_i M_k l'$

$1/6 \, M_i [2 M_k^l + M_k^r] \, l'$

$1/6 \, M_i [2 M_k^l - M_k^r] \, l'$

$1/6 \, M_i M_k l'$

$1/4 \, M_i M_k l'$

$1/12 \, M_i M_k l'$

$1/3 \, M_i M_k l'$

$1/4 \, M_i M_k l'$

$5/12 \, M_i M_k l'$

$1/20 \, M_i M_k l'$

$1/5 \, M_i M_k l'$

$7/60 \, M_i M_k l'$

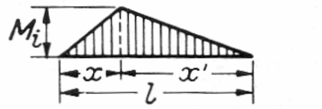
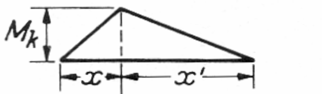
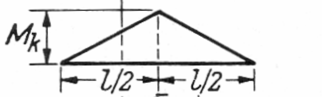
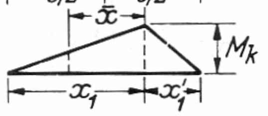
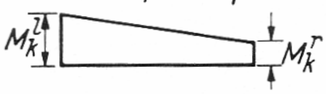
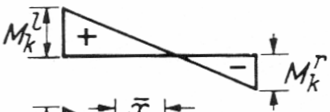
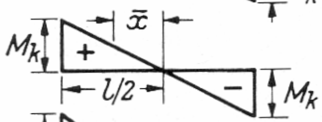
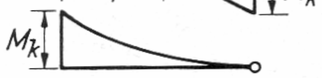
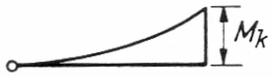
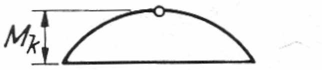
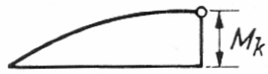
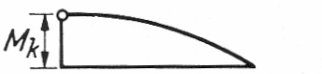
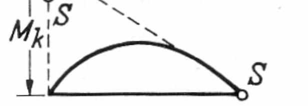
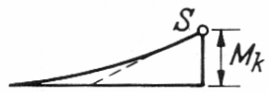
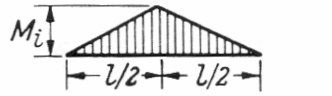
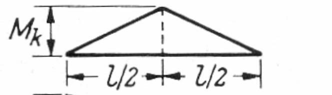
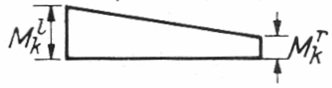
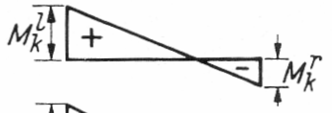
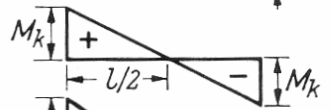
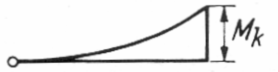
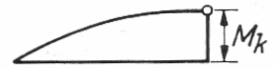
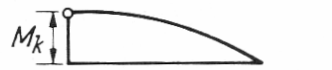
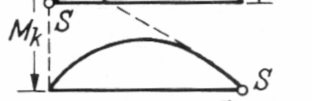
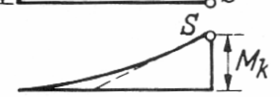
$2/15 \, M_i M_k l'$

$1/10 \, M_i M_k l'$

$11/40 \, M_i M_k l'$

Tafel **11** (Fortsetzung)

$$l' = l\, I_c / I$$

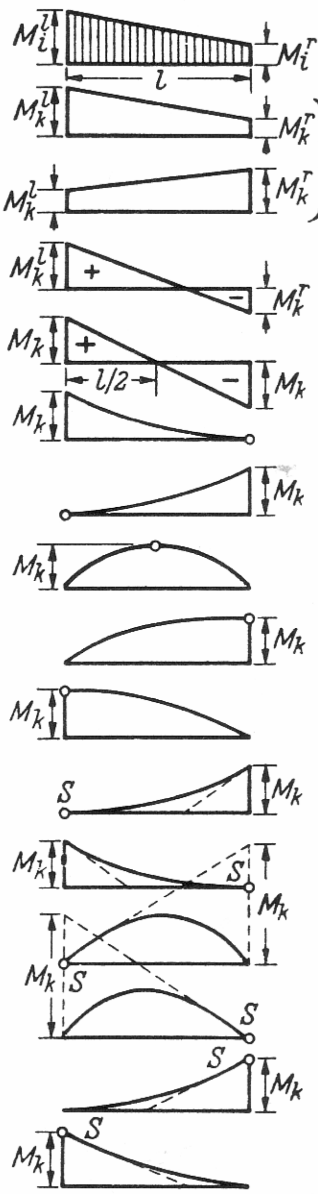
	$\frac{1}{3} M_i^2 l'$
	$\frac{1}{3} M_i M_k l'$
	$\frac{1}{2} M_i M_k \frac{l'}{x'}\left(\frac{l}{2} - \frac{2x^2}{3l}\right)$
	$\frac{1}{6} M_i M_k l'\left(2 - \frac{\bar{x}^2}{x_1 x_1'}\right)$
	$\frac{1}{6} M_i \left[M_k^l\left(1 + \frac{x'}{l}\right) + M_k^r\left(1 + \frac{x}{l}\right)\right] l'$
	$\frac{1}{6} M_i \left[M_k^l\left(1 + \frac{x'}{l}\right) - M_k^r\left(1 + \frac{x}{l}\right)\right] l'$
	$\frac{1}{3} M_i M_k l' \frac{\bar{x}}{l}$
	$\frac{1}{12} M_i M_k l'\left(\frac{3x'}{l} + \frac{x^2}{l^2}\right)$
	$\frac{1}{12} M_i M_k l'\left(\frac{3x}{l} + \frac{x^2}{l^2}\right)$
	$\frac{1}{3} M_i M_k l'\left(1 + \frac{x x'}{l^2}\right)$
	$\frac{1}{12} M_i M_k l'\left(3 + \frac{3x}{l} - \frac{x^2}{l^2}\right)$
	$\frac{1}{12} M_i M_k l'\left(3 + \frac{3x'}{l} - \frac{x'^2}{l^2}\right)$
	$\frac{1}{20} M_i M_k l'\left(1 + \frac{x}{l}\right)\left(1 + \frac{x^2}{l^2}\right)$
	$\frac{1}{20} M_i M_k l'\left(1 + \frac{x'}{l}\right)\left(1 + \frac{x'^2}{l^2}\right)$
	$\frac{1}{20} M_i M_k l'\left(1 + \frac{x}{l}\right)\left(7/3 - \frac{x^2}{l^2}\right)$
	$\frac{1}{20} M_i M_k l'\left(1 + \frac{x'}{l}\right)\left(7/3 - \frac{x'^2}{l^2}\right)$
	$\frac{1}{10} M_i M_k l'\left(1 + \frac{x}{l} + \frac{x^2}{l^2} - \frac{x^3}{4l^3}\right)$
	$\frac{1}{10} M_i M_k l'\left(1 + \frac{x'}{l} + \frac{x'^2}{l^2} - \frac{x'^3}{4l^3}\right)$
	$\frac{1}{3} M_i^2 l'$
	$\frac{1}{3} M_i M_k l'$
	$\frac{1}{4} M_i \left[M_k^l + M_k^r\right] l'$
	$\frac{1}{4} M_i \left[M_k^l - M_k^r\right] l'$
	0
	$\frac{7}{48} M_i M_k l'$
	$\frac{7}{48} M_i M_k l'$
	$\frac{5}{12} M_i M_k l'$
	$\frac{17}{48} M_i M_k l'$
	$\frac{17}{48} M_i M_k l'$
	$\frac{3}{32} M_i M_k l'$
	$\frac{3}{32} M_i M_k l'$
	$\frac{5}{32} M_i M_k l'$
	$\frac{5}{32} M_i M_k l'$
	$\frac{11}{64} M_i M_k l'$
	$\frac{11}{64} M_i M_k l'$

Anmerkung

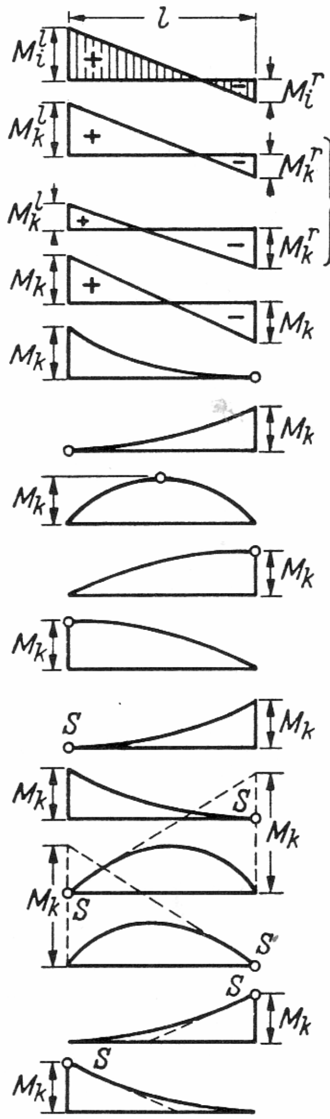
Quadratische Parabeln: Kreise —o— in den Scheitelpunkten.

Kubische Parabeln: Kreise —o— mit S bezeichnet in den Punkten, in denen die zugehörige Dreiecksbelastung den Wert Null aufweist.

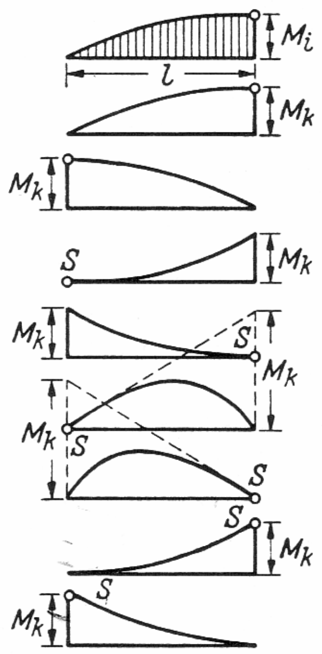
$$l' = l\,I_c/I$$



- $1/3\,(M_i^{l\,2} + M_i^l M_i^r + M_i^{r\,2})\,l'$
- $1/6\,[2(M_i^l M_k^l + M_i^r M_k^r) + M_i^r M_k^l + M_i^l M_k^r]\,l'$ oder $1/6\,[M_i^l(2M_k^l + M_k^r) + M_i^r(2M_k^r + M_k^l)]\,l'$
- $1/6\,[2(M_i^l M_k^l - M_i^r M_k^r) + M_i^r M_k^l - M_i^l M_k^r]\,l'$
- $1/6\,M_k\,(M_i^l - M_i^r)\,l'$
- $1/12\,M_k\,(3M_i^l + M_i^r)\,l'$
- $1/12\,M_k\,(M_i^l + 3M_i^r)\,l'$
- $1/3\,M_k\,(M_i^l + M_i^r)\,l'$
- $1/12\,M_k\,(3M_i^l + 5M_i^r)\,l'$
- $1/12\,M_k\,(5M_i^l + 3M_i^r)\,l'$
- $1/20\,M_k\,(M_i^l + 4M_i^r)\,l'$
- $1/20\,M_k\,(4M_i^l + M_i^r)\,l'$
- $1/60\,M_k\,(7M_i^l + 8M_i^r)\,l'$
- $1/60\,M_k\,(8M_i^l + 7M_i^r)\,l'$
- $1/40\,M_k\,(4M_i^l + 11M_i^r)\,l'$
- $1/40\,M_k\,(11M_i^l + 4M_i^r)\,l'$

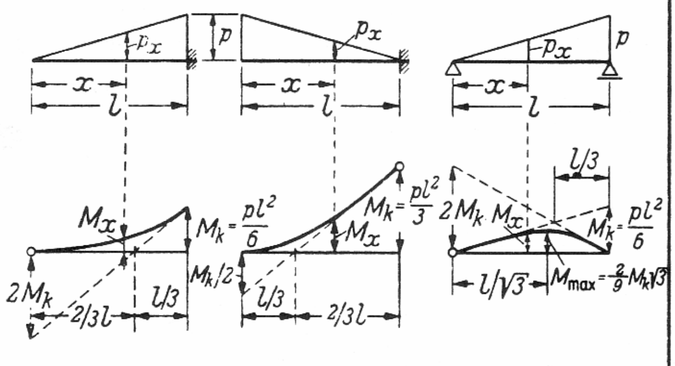


- $1/3\,(M_i^{l\,2} - M_i^l M_i^r + M_i^{r\,2})\,l'$
- $1/6\,[2(M_i^l M_k^l + M_i^r M_k^r) - M_i^r M_k^l - M_i^l M_k^r]\,l'$
- $1/6\,M_k\,(M_i^l + M_i^r)\,l'$
- $1/12\,M_k\,(3M_i^l - M_i^r)\,l'$
- $1/12\,M_k\,(M_i^l - 3M_i^r)\,l'$
- $1/3\,M_k\,(M_i^l - M_i^r)\,l'$
- $1/12\,M_k\,(3M_i^l - 5M_i^r)\,l'$
- $1/12\,M_k\,(5M_i^l - 3M_i^r)\,l'$
- $1/20\,M_k\,(M_i^l - 4M_i^r)\,l'$
- $1/20\,M_k\,(4M_i^l - M_i^r)\,l'$
- $1/60\,M_k\,(7M_i^l - 8M_i^r)\,l'$
- $1/60\,M_k\,(8M_i^l - 7M_i^r)\,l'$
- $1/40\,M_k\,(4M_i^l - 11M_i^r)\,l'$
- $1/40\,M_k\,(11M_i^l - 4M_i^r)\,l'$



- $8/15\,M_i^2\,l'$
- $8/15\,M_i M_k\,l'$
- $11/30\,M_i M_k\,l'$
- $7/30\,M_i M_k\,l'$
- $1/12\,M_i M_k\,l'$
- $11/60\,M_i M_k\,l'$
- $1/6\,M_i M_k\,l'$
- $1/3\,M_i M_k\,l'$
- $19/120\,M_i M_k\,l'$

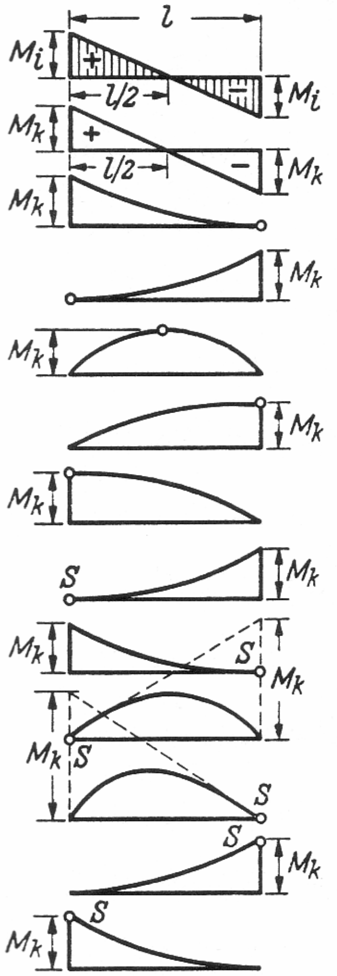
<u>Anmerkung:</u> *Die Gleichungen der kubischen Parabeln*



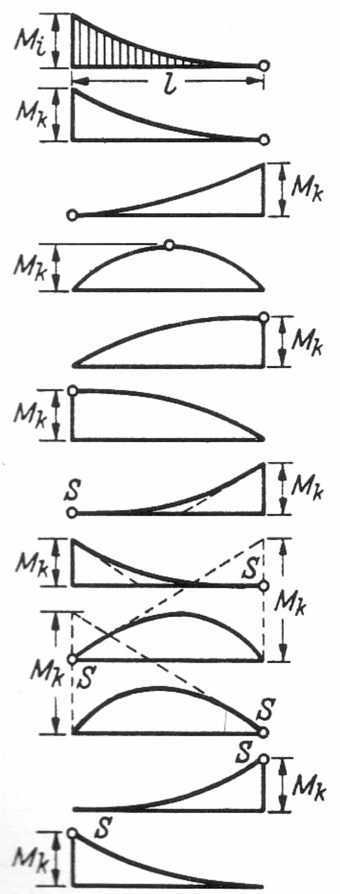
$M_x = M_k \frac{x^3}{l^3}$ $\quad M_x = 1/2\,M_k\left(3\frac{x^2}{l^2} - \frac{x^3}{l^3}\right)$ $\quad M_x = M_k\left(\frac{x}{l} - \frac{x^3}{l^3}\right)$

Tafel 11 (Fortsetzung)

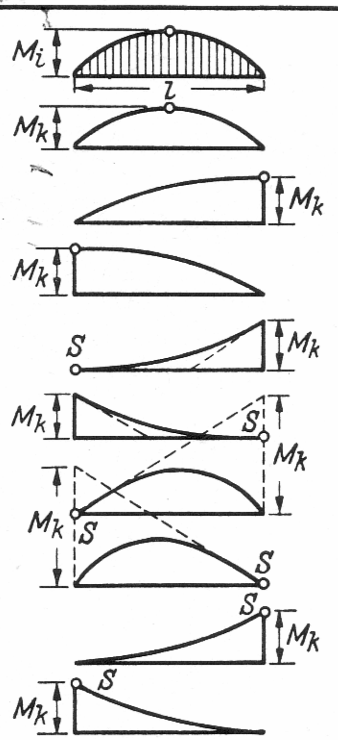
$$l' = l\, I_c / I$$



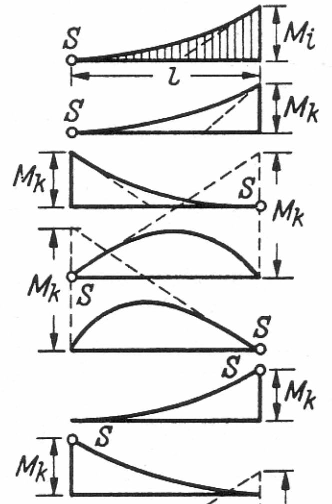
- $1/3\, M_i^2\, l'$
- $1/3\, M_i M_k\, l'$
- $1/6\, M_i M_k\, l'$
- $-1/6\, M_i M_k\, l'$
- 0
- $-1/6\, M_i M_k\, l'$
- $1/6\, M_i M_k\, l'$
- $-3/20\, M_i M_k\, l'$
- $3/20\, M_i M_k\, l'$
- $-1/60\, M_i M_k\, l'$
- $1/60\, M_i M_k\, l'$
- $-1/40\, M_i M_k\, l'$
- $1/40\, M_i M_k\, l'$



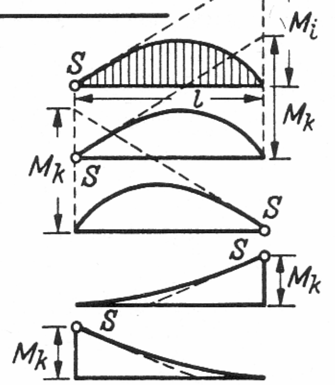
- $1/5\, M_i^2\, l'$
- $1/5\, M_i M_k\, l'$
- $1/30\, M_i M_k\, l'$
- $1/5\, M_i M_k\, l'$
- $2/15\, M_i M_k\, l'$
- $3/10\, M_i M_k\, l'$
- $1/60\, M_i M_k\, l'$
- $1/6\, M_i M_k\, l'$
- $1/15\, M_i M_k\, l'$
- $1/12\, M_i M_k\, l'$
- $1/24\, M_i M_k\, l'$
- $13/60\, M_i M_k\, l'$



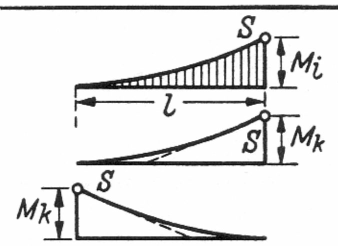
- $8/15\, M_i^2\, l'$
- $8/15\, M_i M_k\, l'$
- $7/15\, M_i M_k\, l'$
- $7/15\, M_i M_k\, l'$
- $2/15\, M_i M_k\, l'$
- $2/15\, M_i M_k\, l'$
- $1/5\, M_i M_k\, l'$
- $1/5\, M_i M_k\, l'$
- $7/30\, M_i M_k\, l'$
- $7/30\, M_i M_k\, l'$



- $1/7\, M_i^2\, l'$
- $1/7\, M_i M_k\, l'$
- $1/140\, M_i M_k\, l'$
- $2/35\, M_i M_k\, l'$
- $3/70\, M_i M_k\, l'$
- $5/28\, M_i M_k\, l'$
- $3/140\, M_i M_k\, l'$



- $8/105\, M_i^2\, l'$
- $8/105\, M_i M_k\, l'$
- $31/420\, M_i M_k\, l'$
- $27/280\, M_i M_k\, l'$
- $11/140\, M_i M_k\, l'$



- $33/140\, M_i^2\, l'$
- $33/140\, M_i M_k\, l'$
- $29/560\, M_i M_k\, l'$