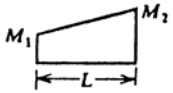
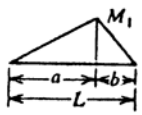
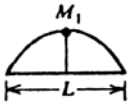
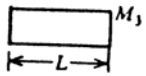
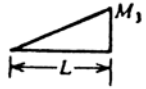
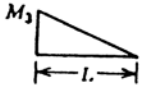
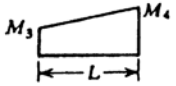
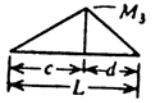
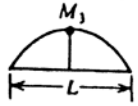
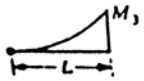
Table A-4

Product Integrals $\int_0^L M_U M_L \, dx$

M_U / M_L				
	$\frac{L}{2} M_1 M_3$	$\frac{L}{2}(M_1 + M_2)M_3$	$\frac{L}{2} M_1 M_3$	$\frac{2L}{3} M_1 M_3$
	$\frac{L}{3} M_1 M_3$	$\frac{L}{6}(M_1 + 2M_2)M_3$	$\frac{L}{6}\left(1 + \frac{a}{L}\right) M_1 M_3$	$\frac{L}{3} M_1 M_3$
	$\frac{L}{6} M_1 M_3$	$\frac{L}{6}(2M_1 + M_2)M_3$	$\frac{L}{6}\left(1 + \frac{b}{L}\right) M_1 M_3$	$\frac{L}{3} M_1 M_3$
	$\frac{L}{6} M_1(M_3 + 2M_4)$	$\frac{L}{6} M_1(2M_3 + M_4)$ $+ \frac{L}{6} M_2(M_3 + 2M_4)$	$\frac{L}{6}\left(1 + \frac{b}{L}\right) M_1 M_3$ $+ \frac{L}{6}\left(1 + \frac{a}{L}\right) M_1 M_4$	$\frac{L}{3} M_1(M_3 + M_4)$
	$\frac{L}{6}\left(1 + \frac{c}{L}\right) M_1 M_3$	$\frac{L}{6}\left(1 + \frac{d}{L}\right) M_1 M_3$ $+ \frac{L}{6}\left(1 + \frac{c}{L}\right) M_2 M_3$	For $c \le a$: $\frac{L}{3} M_1 M_3$ $- \frac{L(a-c)^2}{6ad} M_1 M_3$	$\frac{L}{3}\left(1 + \frac{cd}{L^2}\right) M_1 M_3$
	$\frac{L}{3} M_1 M_3$	$\frac{L}{3}(M_1 + M_2)M_3$	$\frac{L}{3}\left(1 + \frac{ab}{L^2}\right) M_1 M_3$	$\frac{8L}{15} M_1 M_3$
	$\frac{L}{4} M_1 M_3$	$\frac{L}{12}(M_1 + 3M_2)M_3$	$\frac{L}{12}\left(1 + \frac{a}{L} + \frac{a^2}{L^2}\right) M_1 M_3$	$\frac{L}{5} M_1 M_3$

Note All curved lines are second degree parabolas with vertices shown by black dots.

From "Matrix Structural Analysis" by Weaver and Gere
(c) 1980 Litton Educational Publishers