

Table 22.7

Coefficients for the Chebyshev Polynomials  $C_n(x)$  and for  $x^n$  in terms of  $C_m(x)$

$$C_n(x) = \sum_{m=0}^n c_m x^m \quad x^n = b_n^{-1} \sum_{m=0}^n d_m C_m(x)$$

	$x^0$	$x^1$	$x^2$	$x^3$	$x^4$	$x^5$	$x^6$	$x^7$	$x^8$	$x^9$	$x^{10}$	$x^{11}$	$x^{12}$		
$b_n$	2	1	1	1	1	1	1	1	1	1	1	1	1		
$C_0$	2	1		1		3		10		35		126		462	$C_0$
$C_1$		1	1		3		10		35		126		462		$C_1$
$C_2$	-2		1	1		4		15		56		210		792	$C_2$
$C_3$		-3		1	1		5		21		84		330		$C_3$
$C_4$	2		-4		1	1		6		28		120		495	$C_4$
$C_5^*$		5		-5		1	1		7		36		165		$C_5$
$C_6$	-2		9		-6		1	1		8		45		220	$C_6$
$C_7$		-7		14		-7		1	1		9		55		$C_7$
$C_8$	2		-16		20		-8		1	1		10		66	$C_8$
$C_9$		9		-30		27		-9		1	1		11		$C_9$
$C_{10}$	-2		25		-50		35		-10		1	1		12	$C_{10}$
$C_{11}$		-11		55		-77		44		-11		1	1		$C_{11}$
$C_{12}$	2		-36		105		-112		54		-12		1	1	$C_{12}$
	$x^0$	$x^1$	$x^2$	$x^3$	$x^4$	$x^5$	$x^6$	$x^7$	$x^8$	$x^9$	$x^{10}$	$x^{11}$	$x^{12}$		

\*See page II.

$$C_6(x) = x^6 - 6x^4 + 9x^2 - 2 \quad x^6 = 10C_0 + 15C_2 + 6C_4 + C_6$$

Table 22.8

Coefficients for the Chebyshev Polynomials  $S_n(x)$  and for  $x^n$  in terms of  $S_m(x)$

$$S_n(x) = \sum_{m=0}^n c_m x^m \quad x^n = \sum_{m=0}^n d_m S_m(x)$$

	$x^0$	$x^1$	$x^2$	$x^3$	$x^4$	$x^5$	$x^6$	$x^7$	$x^8$	$x^9$	$x^{10}$	$x^{11}$	$x^{12}$		
$S_0$	1	1		1		2		5		14		42		132	$S_0$
$S_1$		1	1		2		5		14		42		132		$S_1$
$S_2$	-1		1	1		3		9		28		90		297	$S_2$
$S_3$		-2		1	1		4		14		48		165		$S_3$
$S_4$	1		-3		1	1		5		20		75		275	$S_4$
$S_5$		3		-4		1	1		6		27		110		$S_5$
$S_6$	-1		6		-5		1	1		7		35		154	$S_6$
$S_7$		-4		10		-6		1	1		8		44		$S_7$
$S_8$	1		-10		15		-7		1	1		9		54	$S_8$
$S_9$		5		-20		21		-8		1	1		10		$S_9$
$S_{10}$	-1		15		-35		28		-9		1	1		11	$S_{10}$
$S_{11}$		-6		35		-56		36		-10		1	1		$S_{11}$
$S_{12}$	1		-21		70		-84		45		-11		1	1	$S_{12}$
	$x^0$	$x^1$	$x^2$	$x^3$	$x^4$	$x^5$	$x^6$	$x^7$	$x^8$	$x^9$	$x^{10}$	$x^{11}$	$x^{12}$		

$$S_6(x) = x^6 - 5x^4 + 6x^2 - 1 \quad x^6 = 5S_0 + 9S_2 + 5S_4 + S_6$$

\*See page II.