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> #  R. Gilmore
> #  The generating function for Chebyshev polynomials is introduced.
> #  The succesive derivatives are taken and evaluated at t=0.
> #  The results are printed as the successive Chebyshev polynomials.
> #
> #restart;
> GenCheb:=(1-t*x)/(1-2*x*t+t^2);
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$$GenCheb := \frac{1-tx}{1-2\,tx+t^2}$$

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> nn:=10;
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$$nn := 10$$

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> gg:=GenCheb:Cheb[0]:=subs(t=0,gg):print(0,Cheb[0]);for i from
1 to nn do gg:=diff(gg,t)/i:Cheb[i]:=subs(t=0,gg):print(i,Cheb[i]):od:
```

$$0,\ 1$$
$$1,\ x$$
$$2,\ 2\,x^2-1$$
$$3,\ 4\,x^3-3\,x$$
$$4,\ 8\,x^4-8\,x^2+1$$
$$5,\ 16\,x^5-20\,x^3+5\,x$$
$$6,\ 32\,x^6-48\,x^4+18\,x^2-1$$
$$7,\ 64\,x^7-112\,x^5+56\,x^3-7\,x$$
$$8,\ 128\,x^8-256\,x^6+160\,x^4-32\,x^2+1$$
$$9,\ 256\,x^9-576\,x^7+432\,x^5-120\,x^3+9\,x$$
$$10,\ 512\,x^{10}-1280\,x^8+1120\,x^6-400\,x^4+50\,x^2-1$$