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> unprotect(Int):
> Int := proc(f::algebraic,x::name)
    if diff(f,x)=0 then return f*x fi;
    'Int'(f,x)
> end:
> Int( 2*y,x );

$$2yx$$

> Int( 2*x, x );

$$\int 2x dx$$

> Int := proc(f::algebraic,x::name) local n,c,g,a,u;
    if diff(f,x)=0 then return f*x fi;
    if f=x then return x^2/2
    elif f=1/x then ln(x)
    elif op(0,f)='^' and op(1,f)=x and op(2,f)<>-1
        and diff(op(2,f),x)=0 then n := op(2,f); x^(n+1)/(n+1) ;
    elif op(0,f)='+' then add( Int(u,x), u=f );
    elif op(0,f)='*' and diff(op(1,f),x)=0 then
        c := op(1,f); c*Int(subsop(1=1,f),x);
    elif f=ln(x) then x*ln(x)-x
    elif f=x*ln(x) then x^2/2*ln(x)-x^2/4
    elif type(op(1,f),identical(x)^posint) and op(2,f)=ln(x) then
        n := op(2,op(1,f)); x^(n+1)/(n+1)*ln(x)-Int( x^n/(n+1), x );
    elif f=exp(x) then exp(x)
    elif f=x*exp(x) then x*exp(x)-exp(x)
    elif type(op(1,f),identical(x)^posint) and op(2,f)=exp(x) then
        n := op(2,op(1,f)); f - Int( n*f/x, x )
    else 'Int'(f,x)
    fi;
> end:
> Int( x^2+2*x+1, x );

$$\frac{1}{3}x^3 + x^2 + x$$

> Int( c*f(x), x );

$$c \left( \int f(x) dx \right)$$

> Int( x^(-1) + 2*x^(-2) + 3*x^(-1/2), x );

$$\ln(x) - \frac{2}{x} + 6\sqrt{x}$$

> Int( exp(x) + ln(x) + sin(x), x );

$$e^x + x\ln(x) - x + \int \sin(x) dx$$

> Int( 2*f(x) + 3*y*x/2 + 3*ln(2), x );

$$2 \left( \int f(x) dx \right) + \frac{3}{4}yx^2 + 3\ln(2)x$$


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> Int( x^2*exp(x) + 2*x*exp(x), x );
      x^2 e^x
=
> Int( 2*exp(-x) + ln(2*x+1), x );
      2 (∫ e^{-x} dx) + ∫ ln(2 x + 1) dx
=
> diff(%,x);
      2 e^{-x} + ln(2 x + 1)
=
> Int( 4*x^3*ln(x) + 3*x^2*ln(x), x );
      x^4 ln(x) - 1/4 x^4 + x^3 ln(x) - 1/3 x^3
=
> diff(%,x);
      4 x^3 ln(x) + 3 x^2 ln(x)

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