```
>> syms x y u t
>> int(sin(x)^7*cos(x)^9,x)

ans =

cos(x)^12/4 - cos(x)^10/10 - (3*cos(x)^14)/14 + cos(x)^16/16

>> f=sin(x)^7*(1-sin(x)^2)^4

f =

sin(x)^7*(sin(x)^2 - 1)^4

>> subs(f,sin(x),u)

ans =

u^7*(u^2 - 1)^4

>> int(ans,u)

ans =

u^16/16 - (2*u^14)/7 + u^12/2 - (2*u^10)/5 + u^8/8

>> subs(ans,u,sin(x))

ans =

sin(x)^8/8 - (2*sin(x)^10)/5 + sin(x)^12/2 - (2*sin(x)^14)/7 + sin(x)^16/16

>>
>> f1=ans

f1 =

sin(x)^8/8 - (2*sin(x)^10)/5 + sin(x)^12/2 - (2*sin(x)^14)/7 + sin(x)^16/16

>>
subs((1-cos(x)^2)^3*cos(x)^9,cos(x),u)

ans =

-u^9*(u^2 - 1)^3

>> int(-ans,u)

ans =
```

```
 u^16/16 - (3*u^14)/14 + u^12/4 - u^10/10

>> subs(ans,u,cos(x))

ans =

-cos(x)^10/10 + cos(x)^12/4 - (3*cos(x)^14)/14 + cos(x)^16/16

>> f2=ans

f2 =

-cos(x)^10/10 + cos(x)^12/4 - (3*cos(x)^14)/14 + cos(x)^16/16

>>
ezplot(f1,[-2*pi,2*pi])
>> hold on
>> ezplot(f2+0.001,[-2*pi,2*pi])
>> hold off

>> factor(x^3-x^2+x+3)

ans =

(x + 1)*(x^2 - 2*x + 3)

>> factor(x^2-2*x+3)

ans =

x^2 - 2*x + 3

>> syms A B C D E F G H
>> simple(A/(x+1)+(B*x+C)/(x^2-2*x+3))

simplify:

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)


radsimp:

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)


simplify(100):
```

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

combine(sincos):

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

combine(sinhcosh):

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

combine(ln):

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

factor:

(3*A + C - 2*A*x + B*x + C*x + A*x^2 + B*x^2)/((x + 1)*(x^2 - 2*x + 3))

expand:

C/(x^2 - 2*x + 3) + A/(x + 1) + (B*x)/(x^2 - 2*x + 3)

combine:

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

rewrite(exp):

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

rewrite(sincos):

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

rewrite(sinhcosh):

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

rewrite(tan):

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

mwcos2sin:

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

collect(x):

((A + B)*x^2 + (B - 2*A + C)*x + 3*A + C)/(x^3 - x^2 + x + 3)

ans =

(C + B*x)/(x^2 - 2*x + 3) + A/(x + 1)

>> [A,B,C]=solve('A+B=1','B-2*A+C=0','3*A+C=5')

A =

1

B =

0

C =

2

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

ans =

log(x + 1) + 2^(1/2)*atan((2^(1/2)*x)/2 - 2^(1/2)/2)

>> int((x^2+5)/(x^3-x^2+x+3),x)

ans =

log(x + 1) + 2^(1/2)*atan((2^(1/2)*x - 2*2^(1/2))/(x + 1))

>> simplify((2*x^3-2*x^2-15*x+5)/(x^2-2*x-8))

```
ans =

2*x + (5*x + 21)/((x + 2)*(x - 4)) + 2

>>
```