```
> 21+5/2;    25*3;   5^7;   13-25;
> 2.1^25; 3^35;
> m:= 3.12; a:= 4.6; prod:= m*a;
> plot(2*x*(1-x), x=0..1, y=0..1);    # 0
> a:= evalf(Pi,45); b:= sqrt(5); b:=evalf(b,35);   # 1
> a^5*b; %/b^3;   # 2
> 13!;    # 3
> %^3;   # 4
> ifactor(%);  # 5
> solve(x^3=%,x);   # 6
> 123*111*129/127*187/1001;    # 7
> ifactor(%);   # 8
> evalf(%%,100);    # 9
> p1:= x -> (x+2)^2*(x^2-4);   # 10
> p1(y-3)^5;    # 11
> expand(%);    # 12
> plot(p1(x), x=-3..3);    # 13
> 3!!!;    # 14
> a:= 'a': b:= 'b': poly:= (a*x^5-b*x^3+15*x)^7;
  expand(poly);  # 15
> coeff(%,a,2);    # 16
> factor(x^20-1048576);   # 17
> expand(%);    # 18
> yfnct:= 1/x + 1/x^2 - (x+2)/(x^2+2*x+5);    # 19
> ynew:=normal(yfnct);    # 20
> diff(yfnct,x);    # 21
> int(ynew,x);    #  22
> F:= int(sqrt(x+1)/x^2,x);    # 23
> G:= diff(F,x);   # 24
> ?help
> ?diff
> ?int
> ?normal
> int(cos(x)/(sin(x)-cos(x)),x);   # 29
> taylor(sin(x^2),x,25);   # 30
> sum(1/i!, i=0..45);   # 31
> evalf(%,65);   # 32
> evalf(exp(1.0),65);    # 33
> limit(sin(x)/x, x=0);   limit(sin(x)/x, x=infinity); # 34
> with(student);   # 35
```

```
> fnct:= exp(x)*sin(x);   # 36
> showtangent(fnct,1.5,x=-Pi..Pi);     # 37
> minimize(fnct);    evalf(%); maximize(fnct,x,{x=0..3});
  evalf(%);# 38
> middlebox(fnct,x=0..Pi,20);   # 39
> middlesum(fnct,x=0..Pi,20);  # 40
> value(%); evalf(%);  # 41
> p:=18*x^4+69*x^3-40*x^2-124*x-48; solve(p=0);  # 42
> solve(p=1);   # 43
> fsolve(p=1);   # 44
> eq:= 4*x^2 - 9*y^2 =36; soln:= solve(eq,y);
  {soln,2/3*x,-2/3*x}; plot(%,x=-10..10);   # 45
> plot(trunc(2*x),x=0..5,style=LINE);   # 46
> plot(sin(x^2-3),x=0..10);  # 47
> plot(2*cos(x) + .5*sin(8*x),x=-Pi..Pi);   # 48
> plot([cos(4*t),t,t=0..2*Pi],coords=polar);   # 49
> plot([1 + 2*cos(t),t,t=0..2*Pi],coords=polar);   # 50
> plot([3+sin(t),2+1/2*cos(.5*t),t=0..4*Pi]);   # 51
> F3D:= (x,y) -> y*(1+x^2+y^2)*exp(-x^2-y^2);
  plot3d(F3D,-3..3,-3..3);   # 52 press left button on
  picture and drag to get rotation box & rotate; then press
  right mouse button to get menu to Redraw (or to do other
  things) to refresh graph!
> G3D:= (x,y) -> cos(x)*sin(3*y);
  plot3d(G3D,-3..3,-3..3);   # 53
> solve( {A*x + 3*y =1, 3*x + 2*y =2},{x,y});   # 54
> dsolve(diff(y(x),x) - x^3*y(x)^2 = 0, y(x));   # 55
> with(plots):
  cylinderplot([z*theta,theta,cos(z^2)],theta=0..Pi,z=-2..2
  , color = theta);   #56
> with(plots): list_polys :=
  [seq([seq([T/10,S/20,sin(T*S/20)],T=0..20)],S=0..10)]:
  polygonplot3d(list_polys);   #57
> with(plots):
  polyhedraplot([0,0,0],polytype=dodecahedron,style=PATCH,
                scaling=CONSTRAINED,orientation=[71,66]);
  #58
> with(plots):
  knot:= [ -10*cos(t) - 2*cos(5*t) + 15*sin(2*t),
     -15*cos(2*t) + 10*sin(t) - 2*sin(5*t), 10*cos(3*t), t=
```

```
  0..2*Pi]:
  helix_points :=
  [seq([10*cos(r/30),10*sin(r/30),r/3],r=-240..360)]:
  spacecurve(helix_points):
  spacecurve({helix_points,knot});  #59
> with(plots): sphereplot([z*theta,exp(theta/10),z^2],
  theta=0..2*Pi,z=-2..2);   #60
> with(plots):
  tubeplot([3*sin(t),t,3*cos(t)],t=-3*Pi..4*Pi,
  radius=1.2+sin(t),numpoints=80);
  tubeplot( [ -10*cos(t) - 2*cos(5*t) + 15*sin(2*t),
              -15*cos(2*t) + 10*sin(t) - 2*sin(5*t),
       10*cos(3*t) ], t= 0..2*Pi,radius=3*cos(t*Pi/3));
  #61
> with(plots):
  tubeplot({[cos(t),sin(t),0],[0,sin(t)-1,cos(t)]},t=0..2*P
  i,radius=1/4);
  tubeplot({[cos(t),sin(t),0],[0,sin(t)-1,cos(t)]},t=0..2*P
  i,radius=1/10*t);
  tubeplot({[cos(t),sin(t),0,t=Pi..2*Pi,numpoints=15,radius
  =0.25*(t-Pi)],

  [0,cos(t)-1,sin(t),t=0..2*Pi,numpoints=45,radius=0.25]});
  #62
> with(plots): F := (x,y) ->sin(x):
  tubeplot({[cos(t),sin(t),0],[0,sin(t)-1,cos(t)]},t=0..2*P
  i,radius=1/4,color=F,style=patch);   #63
> Sum(1/n^2,n=1..infinity)=sum(1/n^2,n=1..infinity); #64
>
```