Function:

In[36]:=
$$f[x\_] := \frac{2x + 3}{3x - 1}$$

In[37]:=
$$f[2]$$

Out[37]=
$$\frac{7}{5}$$

In[38]:=
$$N[\%]$$

Out[38]=
$$1.4$$

In[39]:=
$$f'[x]$$

Out[39]=
$$-\frac{3\,(3 + 2x)}{(-1 + 3x)^2} + \frac{2}{-1 + 3x}$$

In[40]:=
$$D[x^2, x]$$

Out[40]=
$$2x$$

In[41]:=
$$f''[x]$$

Out[41]=
$$\frac{18\,(3 + 2x)}{(-1 + 3x)^3} - \frac{12}{(-1 + 3x)^2}$$

In[42]:=
$$D[x^2, \{x, 2\}]$$

Out[42]=
$$2$$

In[47]:=
$$D[\text{Cos}[x] + x, \{x, 2\}]$$

Out[47]=
$$-\text{Cos}[x]$$

In[48]:=
$$\text{Integrate}[\sqrt{x}, x]$$

Out[48]=
$$\frac{2x^{3/2}}{3}$$

In[49]:=
$$\text{Integrate}[\sqrt{x}, \{x, 0, 2\}]$$

Out[49]=
$$\frac{4\sqrt{2}}{3}$$

In[50]:=
$$N[\text{Integrate}[\sqrt{x}, \{x, 0, 2\}]]$$

Out[50]=
$$1.88562$$

In[51]:= $\mathbf{D\left[x^{x^x},\ x\right]}$

Out[51]= $x^{x^x}\left(x^{-1+x}+x^x \operatorname{Log}[x]\ (1+\operatorname{Log}[x])\right)$

In[54]:= **Clear[a]**

In[55]:= $\mathbf{D\left[a^{a^x},\ x\right]}$

Out[55]= $a^{a^x+x} \operatorname{Log}[a]^2$

In[53]:= $\mathbf{D\left[x^{\frac{1}{x}},\ x\right]}$

Out[53]= $x^{\frac{1}{x}}\left(\frac{1}{x^2}-\frac{\operatorname{Log}[x]}{x^2}\right)$

$D\left[\text{Sin}\left[x^2\right],\ x\right]$ Chain Rule

Out[56]= $2\,x\,\text{Cos}\left[x^2\right]$

D[x*Sin[x], x] Product Rule

Out[58]= $x \operatorname{Cos}[x]+\operatorname{Sin}[x]$

Simplifying Algebraic Expressions:

In[57]:= $\mathbf{Simplify\left[x^2+2x+1\right]}$

Out[57]= $(1+x)^2$

In[59]:= $\mathbf{Integrate\left[\frac{1}{x^4-1},\ x\right]}$

Out[59]= $-\frac{\operatorname{ArcTan}[x]}{2}+\frac{1}{4}\operatorname{Log}[1-x]-\frac{1}{4}\operatorname{Log}[1+x]$

In[60]:= $\mathbf{Simplify\left[Integrate\left[\frac{1}{x^4-1},\ x\right]\right]}$

Out[60]= $\frac{1}{4}\left(-2\operatorname{ArcTan}[x]+\operatorname{Log}[1-x]-\operatorname{Log}[1+x]\right)$

In[61]:= $\mathbf{FullSimplify\left[Integrate\left[\frac{1}{x^4-1},\ x\right]\right]}$

Out[61]= $\frac{1}{2}\left(-\operatorname{ArcTan}[x]-\operatorname{ArcTanh}[x]\right)$

In[63]:= $\mathbf{FullSimplify\left[Integrate\left[\frac{1}{x^4-1},\ \left\{x,\ -\frac{Pi}{4},\ \frac{Pi}{4}\right\}\right]\right]}$

$\mathbf{-ArcTan\left[\frac{\pi}{4}\right]-ArcTanh\left[\frac{\pi}{4}\right]}$

In[79]:=
```
Solve[x^5 - 4 x + 5 == 0, x]
```

Out[79]=
$$\left\{\left\{x \to -1.63\ldots\right\}, \left\{x \to -0.237\ldots - 1.52\ldots\, i\right\}, \left\{x \to -0.237\ldots + 1.52\ldots\, i\right\}, \left\{x \to 1.05\ldots - 0.443\ldots\, i\right\}, \left\{x \to 1.05\ldots + 0.443\ldots\, i\right\}\right\}$$

In[80]:=
```
NSolve[x^5 - 4 x + 5 == 0, x]
```

Out[80]=
$$\{\{x \to -1.63044\}, \{x \to -0.237094 - 1.51552\, i\}, \{x \to -0.237094 + 1.51552\, i\}, \{x \to 1.05231 - 0.442637\, i\}, \{x \to 1.05231 + 0.442637\, i\}\}$$

In[81]:=
```
NSolve[x^5 - 4 x + 5 == 0, x, Reals]
```

Out[81]=
$$\{\{x \to -1.63044\}\}$$

In[85]:=
```
Solve[{x^2 + y^3 == 1, 2 x + 3 y == 6}, {x, y}]
```

Out[85]=
$$\left\{\left\{x \to \frac{3}{2}\left(2 - -4.59\ldots\right), y \to -4.59\ldots\right\}, \left\{x \to \frac{3}{2}\left(2 - 1.17\ldots - 0.611\ldots\, i\right), y \to 1.17\ldots - 0.611\ldots\, i\right\}, \left\{x \to \frac{3}{2}\left(2 - 1.17\ldots + 0.611\ldots\, i\right), y \to 1.17\ldots + 0.611\ldots\, i\right\}\right\}$$

In[84]:=
```
NSolve[{x^2 + y^3 == 1, 2 x + 3 y == 6}, {x, y}]
```

Out[84]=
$$\{\{x \to 9.88548, y \to -4.59032\}, \{x \to 1.24476 - 0.916754\, i, y \to 1.17016 + 0.611169\, i\}, \{x \to 1.24476 + 0.916754\, i, y \to 1.17016 - 0.611169\, i\}\}$$

```
(*Integrate: Sqrt[(1-Sin[2x])], (1-Cos[2x])/(1+Cos[2x]), (x^3+1)/(x+1), Sin[x]/(3+4*Cos[x]), 1/(x(1+Log[x]))*)
```

In[88]:=
```
Integrate[Sqrt[(1 - Sin[2 x])], x]
```

Out[88]=
$$\frac{(\text{Cos}[x] + \text{Sin}[x])\ \sqrt{1 - \text{Sin}[2x]}}{\text{Cos}[x] - \text{Sin}[x]}$$

In[89]:=
```
Integrate[(1 - Cos[2 x])/(1 + Cos[2 x]), x]
```

Out[89]=
$$-x + \text{Tan}[x]$$

In[90]:=
```
Integrate[(x^3 + 1)/(x + 1), x]
```

Out[90]=
$$x - \frac{x^2}{2} + \frac{x^3}{3}$$

In[91]:=
```
Integrate[Sin[x]/(3 + 4 * Cos[x]), x]
```

Out[91]=
$$-\frac{1}{4}\text{Log}[3 + 4\,\text{Cos}[x]]$$

In[92]:=
```
Integrate[1/(x (1 + Log[x])), x]
```

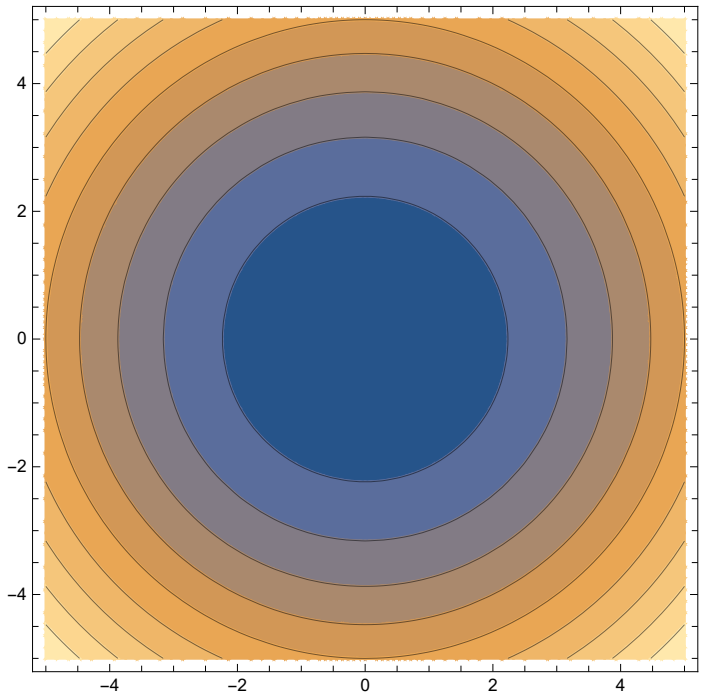
Out[92]=
```
Log[1 + Log[x]]
```

In[94]:=
```
FullSimplify[Integrate[Sqrt[(1 - Sin[2 x])], {x, 0, Pi}]]
```

Out[94]=
$$2\sqrt{2}$$

In[95]:=
```
ContourPlot[x^2 + y^2, {x, -5, 5}, {y, -5, 5}]
```

Out[95]=



In[99]:=
```
Plot3D[x^2 + y^2, {x, -5, 5}, {y, -5, 5}]
```

Out[99]=