versione 0

Equazioni differenziali – 0

In[6]:=
```
Simplify[DSolve[{y'[x] == (3 x^2 y[x])/(2 Log[y[x]]), y[2] == e^-1},
  y[x], x]]
```

Solve::ifun :
Inverse functions are being used by Solve, so some solutions may not be found; use Reduce for complete solution information. ≫

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General::stop : Further output of Solve::ifun will be suppressed during this calculation. ≫

DSolve::bvnul :
For some branches of the general solution, the given boundary conditions lead to an empty solution. ≫

Out[6]= $\{\{y[x] \to e^{-\sqrt{-7+x^3}}\}\}$

Funzioni di due variabili, punti critici – 0

In[77]:=
```
g[x_, y_] := (x - y) * e^(-x+y^2);
f[x_, y_] := g[x, y]; Expand[f[x, y]];
Print[f[x, y]];
grad = Expand[{D[f[x, y], x], D[f[x, y], y]}];
Print[grad];
Print[Solve[grad == {0, 0}, {x, y}]];
H[x_, y_] = ( ∂x,x f[x, y]  ∂x,y f[x, y]
              ∂y,x f[x, y]  ∂y,y f[x, y] );
Print[Simplify[MatrixForm[H[x, y]]]]
```

$e^{-x+y^2}(x-y)$

$\{e^{-x+y^2} - e^{-x+y^2}x + e^{-x+y^2}y,\ -e^{-x+y^2} + 2e^{-x+y^2}xy - 2e^{-x+y^2}y^2\}$

$\{\{x \to \frac{3}{2},\ y \to \frac{1}{2}\}\}$

$$\begin{pmatrix} e^{-x+y^2}(-2+x-y) & e^{-x+y^2}\left(1-2(-1+x)y+2y^2\right) \\ e^{-x+y^2}\left(1-2(-1+x)y+2y^2\right) & 2e^{-x+y^2}\left(x-3y+2xy^2-2y^3\right) \end{pmatrix}$$

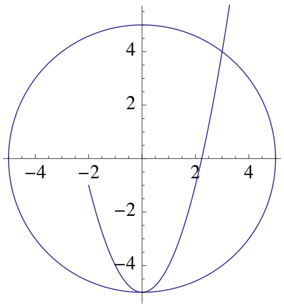
In[76]:=
```
Print[Simplify[MatrixForm[H[3/2, 1/2]]]]
```

$$\begin{pmatrix} -\frac{1}{e^{5/4}} & \frac{1}{e^{5/4}} \\ \frac{1}{e^{5/4}} & \frac{1}{e^{5/4}} \end{pmatrix}$$

Integrale doppio – 0

In[192]:=
```
aa = Plot[x^2 - 5, {x, -2, 3.5}, AspectRatio → Automatic];
ab = ParametricPlot[{5 Cos[t], 5 Sin[t]}, {t, 0, 2 π}];
Show[aa, ab, PlotRange → {-5.2, 5.5}]
```

Out[194]=



In[177]:= $f[x\_, y\_] := \frac{2x}{y+6};$

$\text{Simplify}\left[\left\{\int_{\sqrt{5+y}}^{\sqrt{25-y^2}} f[x, y]\, dx,\right.\right.$

$\int\int_{\sqrt{5+y}}^{\sqrt{25-y^2}} f[x, y]\, dx\, dy,$

$\left.\left.\int_{-5}^{4}\int_{\sqrt{5+y}}^{\sqrt{25-y^2}} f[x, y]\, dx\, dy\right\}\right]$

Out[178]= $\left\{-\frac{-20 + y + y^2}{6 + y},\ 48 + 5y - \frac{y^2}{2} - 10\,\text{Log}[6 + y],\ \frac{99}{2} - 10\,\text{Log}[10]\right\}$

Numero complesso – 0

In[189]:= $z = (4 + 3\,i) * \left(3 + \sqrt{3}\,i\right)^4;$ Print[{Abs[z], Arg[z]}]

$\left\{720,\ \pi + \text{ArcTan}\left[\frac{-\frac{216}{5} + \frac{288\sqrt{3}}{5}}{-\frac{288}{5} - \frac{216\sqrt{3}}{5}}\right]\right\}$

In[182]:= Simplify[%]

Out[182]= $(4 + 3\,i)\left(-3\,i + \sqrt{3}\right)^4$

Matrice, autovalori… – 0

In[191]:= $a = \begin{pmatrix} 2 & 3 \\ 2 & -3 \end{pmatrix};$ Print[{Eigenvalues[a], Eigenvectors[a]}]

{{-4, 3}, {{-1, 2}, {3, 1}}}