

(\*1\*)

In[92]:= DSolve[{y'[x] == 1 / ((1 / 2) \* ((y[x] \* x) + (3 \* ((y[x]) ^ 2) \* (Exp[x^2]))))}, y[x], x];  
[resolvidor diferencial] [exponencial]

DSolve[{y'[x] == 1 / ((1 / 2) \* ((y[x] \* x) + (3 \* ((y[x]) ^ 2) \* (Exp[x^2]))))},  
[resolvidor diferencial] [exponencial]

y[(1 / 2) + 5] == (1 / 2)}, y[x], x]

Out[93]=

$$\text{DSolve}\left[\left\{y'[x] = \frac{2}{x y[x] + 3 e^{x^2} y[x]^2}, y\left[\frac{11}{2}\right] = \frac{1}{2}\right\}, y[x], x\right]$$

(\*Como se puede ver, no tiene solución en el punto y(11/2) =  
1/2 ya que no es continua allí o no está definida.\*)

(\*II\*)

DSolve[{y'[x] == (((y[x]) + (Sqrt[x \* y[x]])) / (x - y[x] - ((y[x] ^ (-1 / 2)) \* (x ^ (3 / 2)))))) /  
[resolvidor diferencial] [raíz cuadrada]

y[x]}, y[x], x];

Out[97]=

$$\text{DSolve}\left[\left\{y'[x] = \frac{y[x] + \sqrt{x y[x]}}{\left(x - \frac{x^{3/2}}{\sqrt{y[x]}} - y[x]\right) y[x]}\right\}, y[x], x\right]$$

In[96]:= DSolve[{y'[x] == (x - 1) / y[x], y[-2] == 1}, y[x], x]  
[resolvidor diferencial]

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

Out[96]=

$$\left\{\left\{y[x] \rightarrow \sqrt{-7 - 2 x + x^2}\right\}\right\}$$

In[102]:=

(\*3\*)

Integrate[Sqrt[1 / x], x]  
[integra] [raíz cuadrada]

Out[102]=

$$\frac{2}{\sqrt{\frac{1}{x}}}$$

In[104]:=

Integrate[((1 / 2) \* ((x) / ((x^2) + (1))))), x]  
[integra]

Out[104]=

$$\frac{1}{4} \text{Log}[1 + x^2]$$

In[105]:=

```
Derivative[Integrate[Sqrt[1 / x], x] + Integrate[(1 / 2) * ((x) / ((x^2) + (1))), x], x]
```

[derivada] [integra] [raíz cuadrada] [integra]

Out[105]=

$$\text{Derivative}\left[\frac{2}{\sqrt{\frac{1}{x}}} + \frac{1}{4} \text{Log}[1 + x^2], x\right]$$

(\*La primera la multiplicamos por Sqrt[P(t)], luego,

[raíz cuadrada]

se obtiene la integral respecto de q para hallar g(p) y reemplazar...\*)

(\*III\*)

```
Show[StreamPlot[{1, Exp[y] - (x * y)}, {x, -2, 2}, {y, -2, 2}],
```

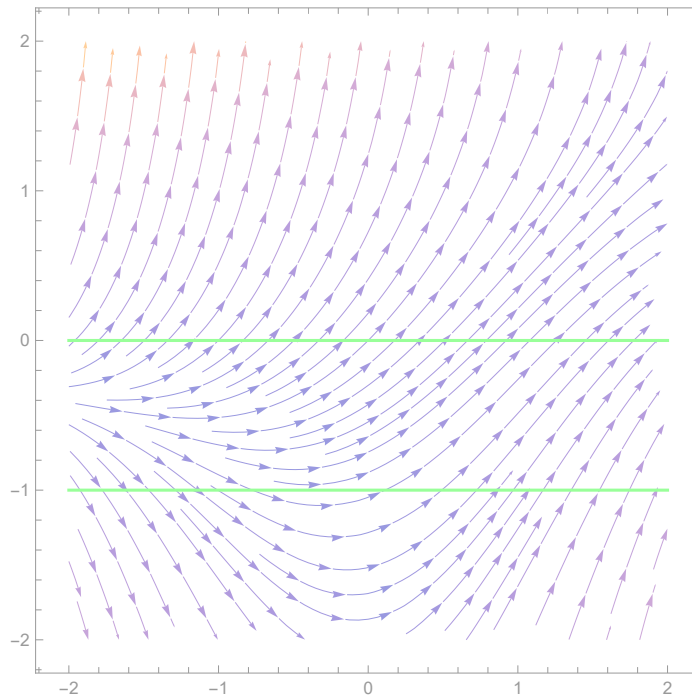
[mue··] [representación de ··] [exponencial]

```
ContourPlot[{y == -1, y == 0}, {x, -2, 2}, {y, -2, 2}, ContourStyle -> Green]]
```

[representación de contornos]

[estilo de contorno] [verde]

Out[115]=



In[117]:=

```
Solve[Exp[y + c] - (x * y) == 0, c]
```

[resue··] [exponencial]

Out[117]=

$$\left\{ \left\{ c \rightarrow -y + 2 i \pi c_1 + \text{Log}[x y] \text{ if } c_1 \in \mathbb{Z} \right\} \right\}$$

In[119]:=

```
Derivative[Exp[y] - (x * y) == 0, x]
```

[derivada] [exponencial]

Out[119]=

$$\text{Derivative}[e^y - x y == 0, x]$$