

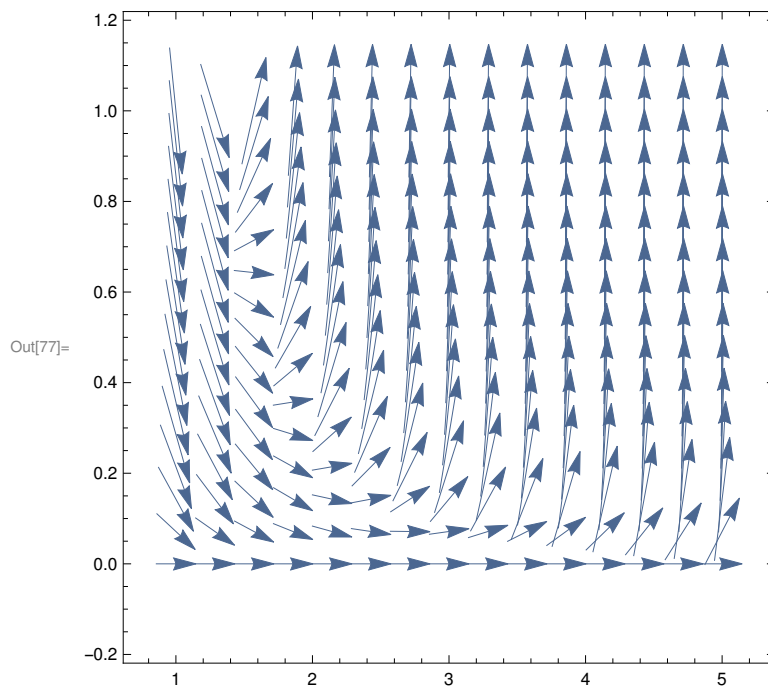
Because I took a Differential Equations class as a High School senior, I didn't need to do much work on this Bset other than figuring out Mathematica syntax. My work is below.

```
In[22]:= eqn = y'[x] + 4/x y[x] == x^3 y[x]^2
sol = DSolve[eqn, y, x][[1]]
```

```
Out[22]=  $\frac{4 y[x]}{x} + y'[x] == x^3 y[x]^2$ 
```

```
Out[23]=  $\left\{ y \rightarrow \text{Function}\left[\{x\}, \frac{1}{x^4 (C[1] - \text{Log}[x])}\right] \right\}$ 
```

```
In[76]:= neweqn = Solve[eqn, y'[x]][[1, 1, 2]] /. y[x] -> y;
VectorPlot[Normalize@{1, neweqn}, {x, 1, 5}, {y, 0, 1}]
```



In[35]:= **Manipulate**[**Plot**[$y[x]$ /. sol /. {C[1] → const}, {x, 0, 2}], {const, 0, 10}]

Out[35]=

