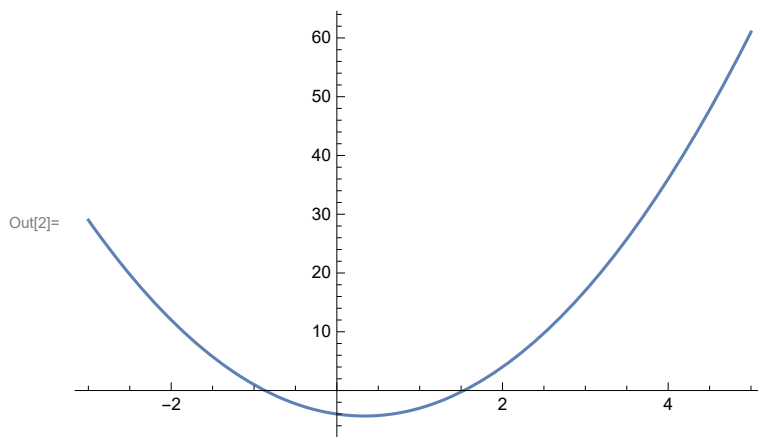


Tech Project #3

Arc Length

Kyle Tolliver

In[2]:= `Plot[3 x^2 - 2 x - 4, {x, -3, 5}, {PlotRange -> Automatic}]`



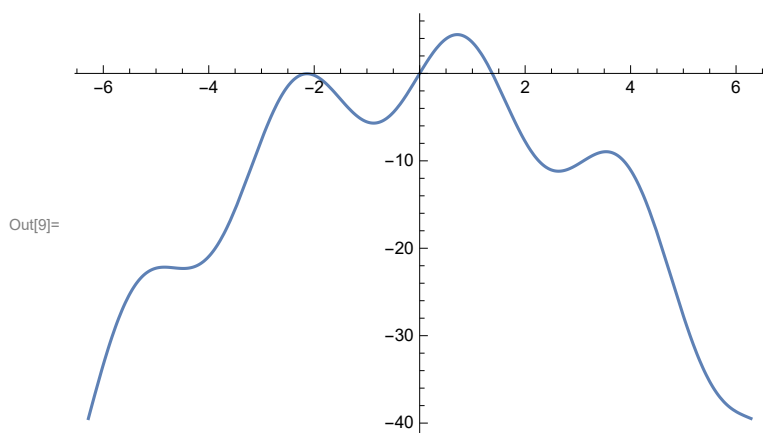
In[3]:= `D[3 x^2 + 2 x - 4, x]`

2 + 6 x

In[8]:=
$$\int_{-3}^5 \sqrt{1 + (2 + 6x)^2} \, dx \, // \, N$$

Out[8]= 107.385

In[9]:= **Plot**[5 Sin[2 x] - x^2, {x, -2 π, 2 π}, {PlotRange → Automatic}]



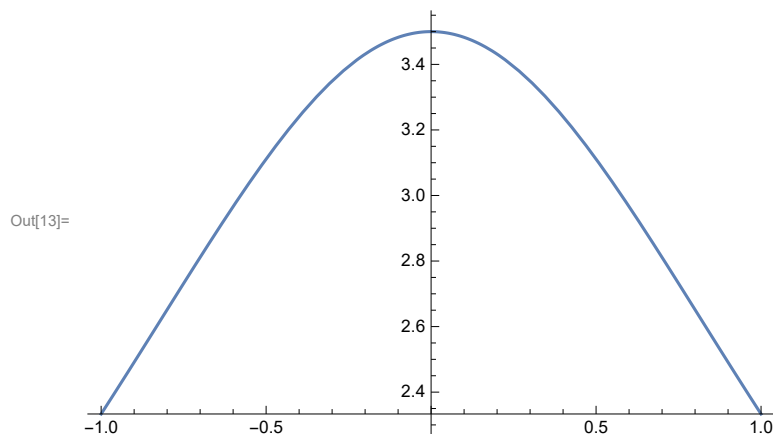
In[10]:= **D**[5 Sin[2 x] - x^2, x]

- 2 x + 10 Cos [2 x]

In[12]:= $\int_{-2\pi}^{2\pi} \sqrt{1 + (10 \cos[2x] - 2x)^2} dx // N$

Out[12]= 105.685

In[13]:= **Plot**[7 / (x^2 + 2), {x, -1, 1}, PlotRange → Automatic]



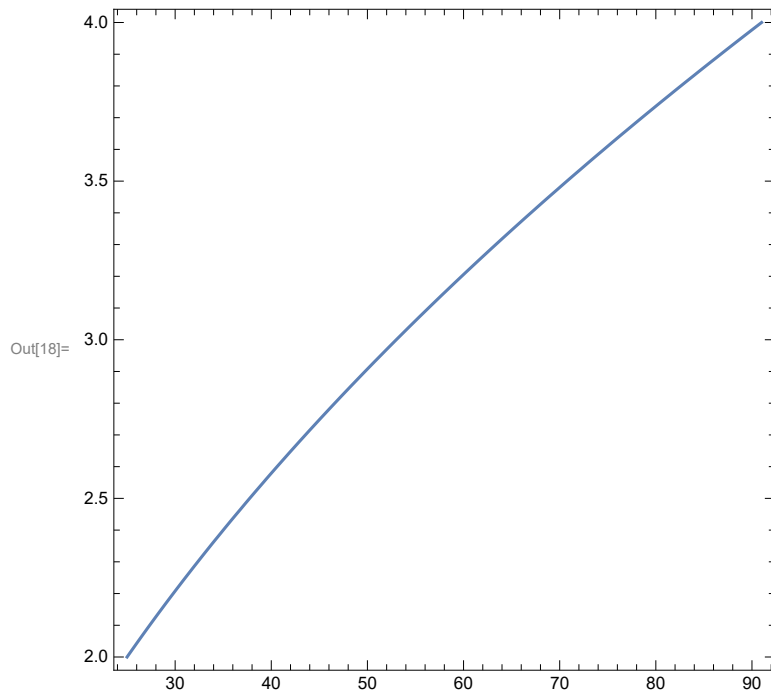
In[14]:= **D**[7 / (x^2 + 2), x]

Out[14]= $-\frac{14x}{(2+x^2)^2}$

In[17]:= $\int_{-1}^1 \sqrt{1 + (-14x / (2+x^2)^2)^2} dx // N$

Out[17]= 3.16074

In[18]:= **ContourPlot**[$x = 5y^2 + 3y - 1$, { x , 25, 91}, { y , 2, 4}]



In[19]:= **D**[$5y^2 + 3y - 1$, y]

Out[19]= $3 + 10y$

In[20]:= $\int_2^4 \sqrt{1 + (3 + 10y)^2} \, dy \, // \, \mathbf{N}$

Out[20]= 66.0313