

Exponential and Logarithmic Functions

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Objective

To compare the behavior of various exponential and logarithmic functions.

Narrative

In this project you will use the **Plot** command to plot several functions on one set of coordinate axes.

Tasks

1. Type the command lines below into Mathematica in the order in which they are listed. These commands produce graphs of various exponential and logarithmic functions.

```
In[1] := (* Your name, today's date *)
In[2] := (* Exponential and Logarithmic Functions *)
In[3] := Plot[{Log[x], Exp[x], x}, {x,0,4}, AspectRatio->1]
In[4] := Plot[{Log[x], Log[2x], Log[x/2], Log[x^2]}, {x,0,4}, AspectRatio->1]
In[5] := Plot[{Exp[x], Exp[-x], Exp[2x], 2Exp[x]}, {x,0,4}, AspectRatio->1]
In[6] := f[x_] := Exp[Sin[5x]]
In[7] := f'[x]
In[8] := Plot[{f[x],f'[x]}, {x,-2,2}]
```

At this time, make a hard-copy of your typed input and Mathematica's responses (both text and graphics). Then:

2. Label by hand each of the curves in each of the graphics you created in Task 1.

Your lab report will be a hard-copy of your typed input and Mathematica's responses (both text and hand-drawn graphics).