Extra Project 7.4c: Exponential and Logarithmic Functions

Objective

To compare the behavior of various exponential and logarithmic functions.

Narrative

If you have not already done so, read Section 7.4 in the text.
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 Maple in the order in which they are listed. These commands produce graphs of various exponential and logarithmic functions.

```
> # Project 7.4c:  Exponential and Logarithmic Functions
> restart;
> plot({ln(x),exp(x),x},x=-3..5,y=-3..5,scaling=constrained);
> plot({ln(x),ln(2*x),ln(x/2),ln(x^2)},x=0..6);
> plot({exp(x),exp(-x),exp(2*x),2*exp(x)},x=-3..3,y=-1..30);
> plot({exp(x),exp(-x),exp(2*x),2*exp(x)},x=-3..3,y=-1..30,scaling=constrained);
> f := x -> exp(sin(5*x));
> diff(f(x),x);
> plot({f(x),diff(f(x),x)},x=-2..2);
```

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

2. Label by hand each of the curves in each of the graphics you created in part (1).