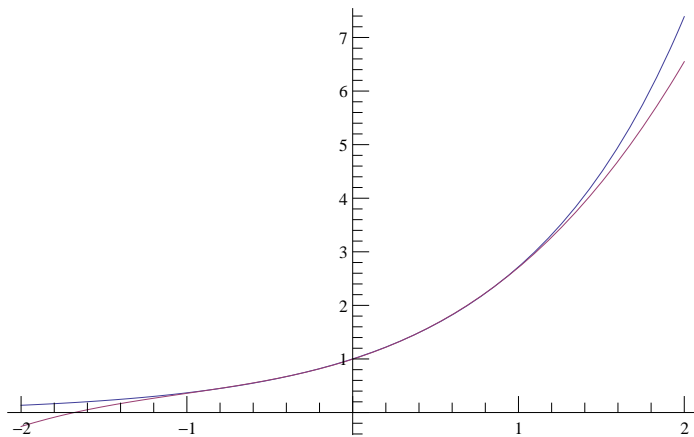


```
In[7]= Plot[{Exp[x], 1.175 + 1.104*x + .537*(x^2 - 1/3) + .176*(x^3 - 3/5*x)}, {x, -2, 2}]
```

```
In[74]=
```



(*Function maintains good approximation on
the interval $[-1, 1]$ but diverges rapidly for values of $|x| > 1$ *)

```
In[67]= Needs["PlotLegends`"];
```

$$s1 = \frac{2}{(2-1)\pi} \sin[(2-1)x];$$

$$s3 = \text{Sum}\left[\frac{2}{(2*n-1)\pi} \sin[(2*n-1)x], \{n, 3\}\right];$$

$$s7 = \text{Sum}\left[\frac{2}{(2*n-1)\pi} \sin[(2*n-1)x], \{n, 7\}\right];$$

$$s10 = \text{Sum}\left[\frac{2}{(2*n-1)\pi} \sin[(2*n-1)x], \{n, 10\}\right];$$

$$f = \text{Piecewise}\left[\left\{\left\{\frac{-1}{2}, -\pi < x \leq 0\right\}, \left\{\frac{1}{2}, 0 \leq x \leq \pi\right\}\right\}\right];$$

```
Plot[{s1, s3, s7, s10, f}, {x, -pi, pi},  
PlotStyle -> {Dashing[Tiny], Dashing[Large], Black, Thickness[.001], Thickness[.005]},  
PlotLegend -> {"S1", "S3", "S7", "S10", "f(x)"}, LegendPosition -> {.05, -.9}]
```

```
Out[73]=
```

