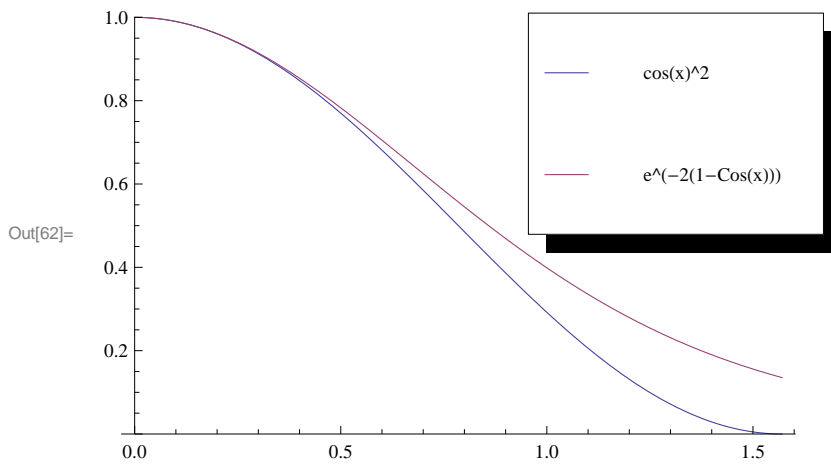
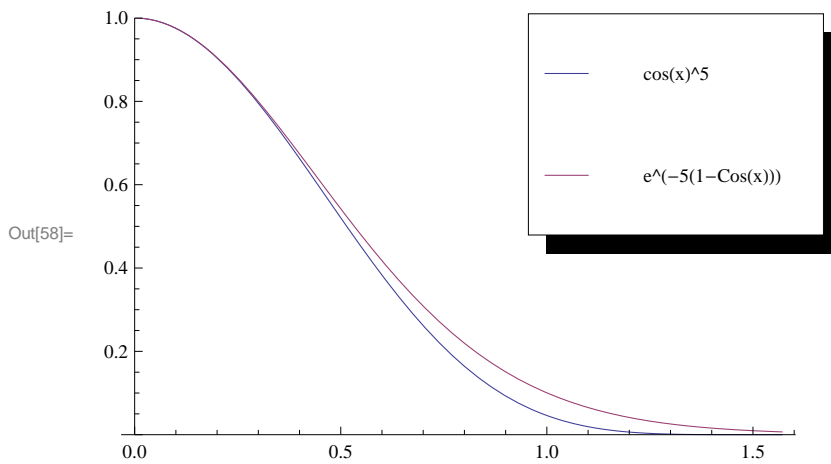


In[61]:= Needs["PlotLegends`"]

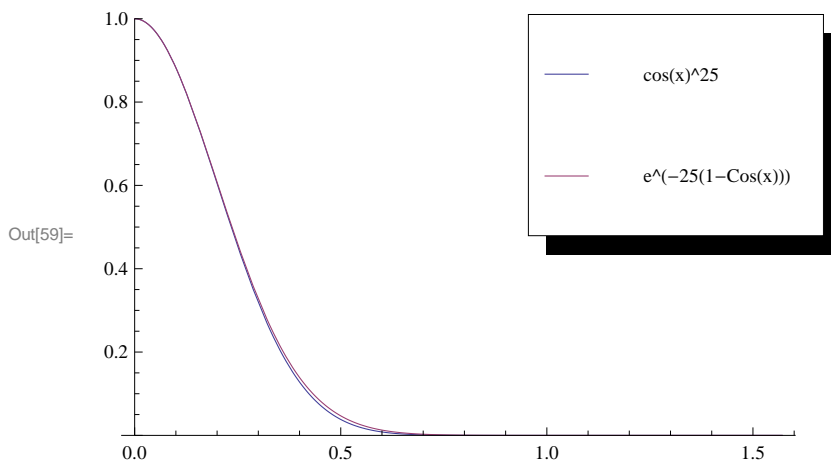
```
Plot[{Cos[x]^2, Exp[-2(1-Cos[x])]}, {x, 0, π/2}, PlotRange -> {0, 1},  
PlotLegend -> {"cos(x)^2", "e^(-2(1-Cos(x)))"}, LegendPosition -> {0.15, 0}]
```



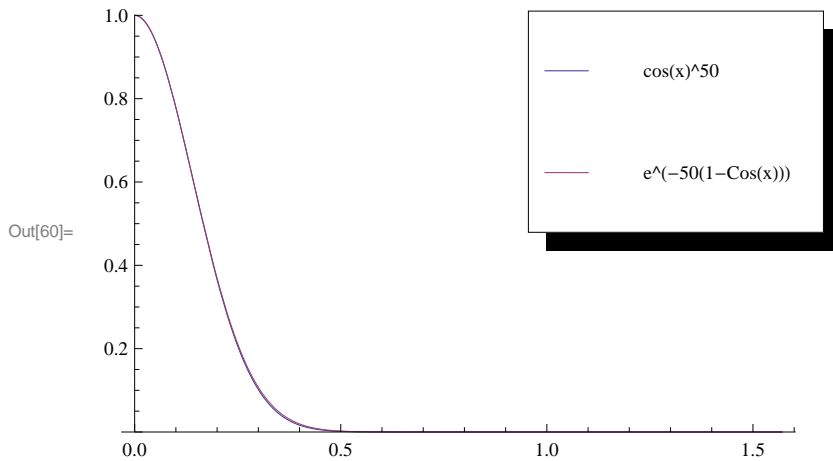
```
In[58]:= Plot[{Cos[x]^5, Exp[-5(1-Cos[x])]}, {x, 0, π/2}, PlotRange -> {0, 1},  
PlotLegend -> {"cos(x)^5", "e^(-5(1-Cos(x)))"}, LegendPosition -> {0.15, 0}]
```



```
In[59]:= Plot[{Cos[x]^25, Exp[-25(1-Cos[x])]}, {x, 0, π/2}, PlotRange -> {0, 1},  
PlotLegend -> {"cos(x)^25", "e^(-25(1-Cos(x)))"}, LegendPosition -> {0.15, 0}]
```

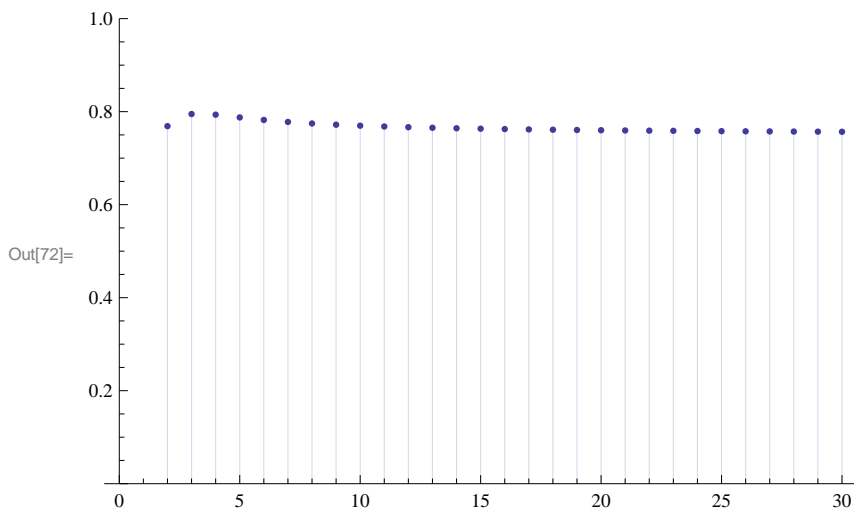


```
In[60]:= Plot[{Cos[x]^50, Exp[-50(1-Cos[x])]}, {x, 0, π/2}, PlotRange → {0, 1},
  PlotLegend → {"cos(x)^50", "e^(-50(1-Cos(x)))"}, LegendPosition → {0.15, 0}]
```

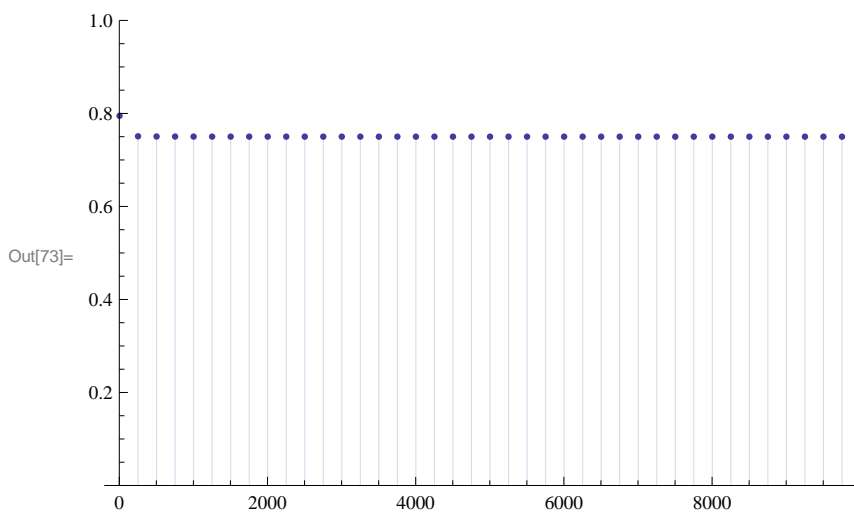


```
In[71]:= G[Y_] := a /. FindFit[Table[{x, x^Y}, {x, 0, 1, 0.00001}],
  2^(((Y+a)/Log[2])*(xx-1)), {a}, xx]
```

```
In[72]:= DiscretePlot[G[x], {x, 2, 30, 1}, PlotRange → {0, 1}]
```



```
In[73]:= DiscretePlot[G[x], {x, 3, 10 000, 250}, PlotRange → {0, 1}]
```



```
In[75]:= FindFit[Table[{x, x^5000}, {x, 0, 1, 0.00001}],
  2^((5000 + a) / Log[2]) * (xx - 1), {a}, xx]
```

```
Out[75]:= {a → 0.750041}
```

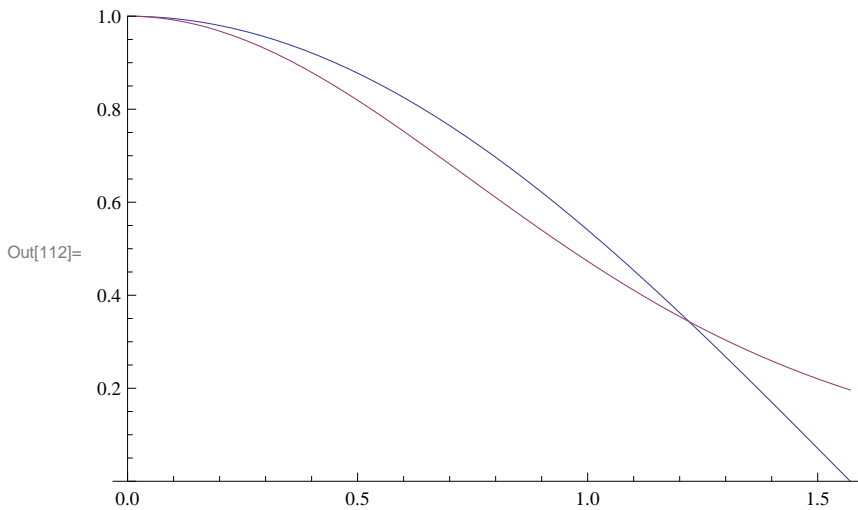
```
In[103]:= data = Table[G[x], {x, 3, 15, 1}];
  Mean[data]
```

```
Out[104]:= 0.775364
```

```
In[111]:= FindFit[Table[{x, x^1}, {x, 0, 1, 0.001}],
  2^((1 + a) / Log[2]) * (xx - 1), {a}, xx]
```

```
Out[111]:= {a → 0.628376}
```

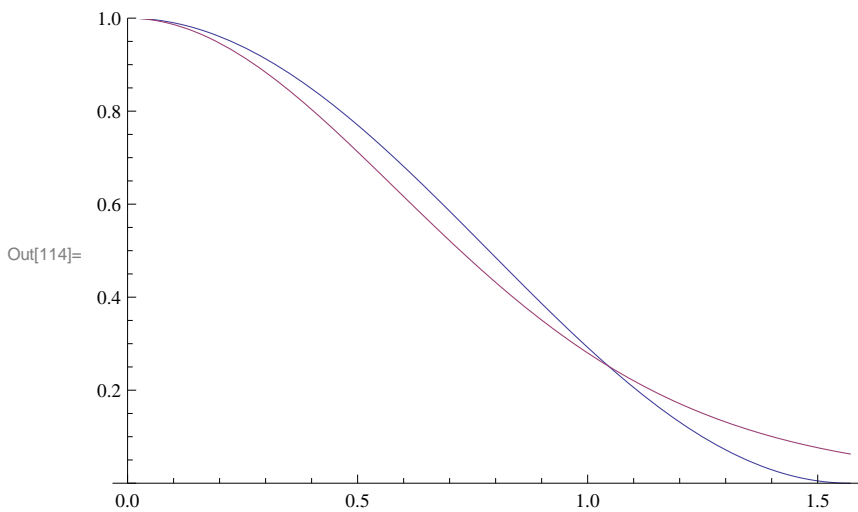
```
In[112]:= Plot[{Cos[x]^1, Exp[(1 + 0.628) (Cos[x] - 1)]}, {x, 0, π / 2}, PlotRange → {0, 1}]
```



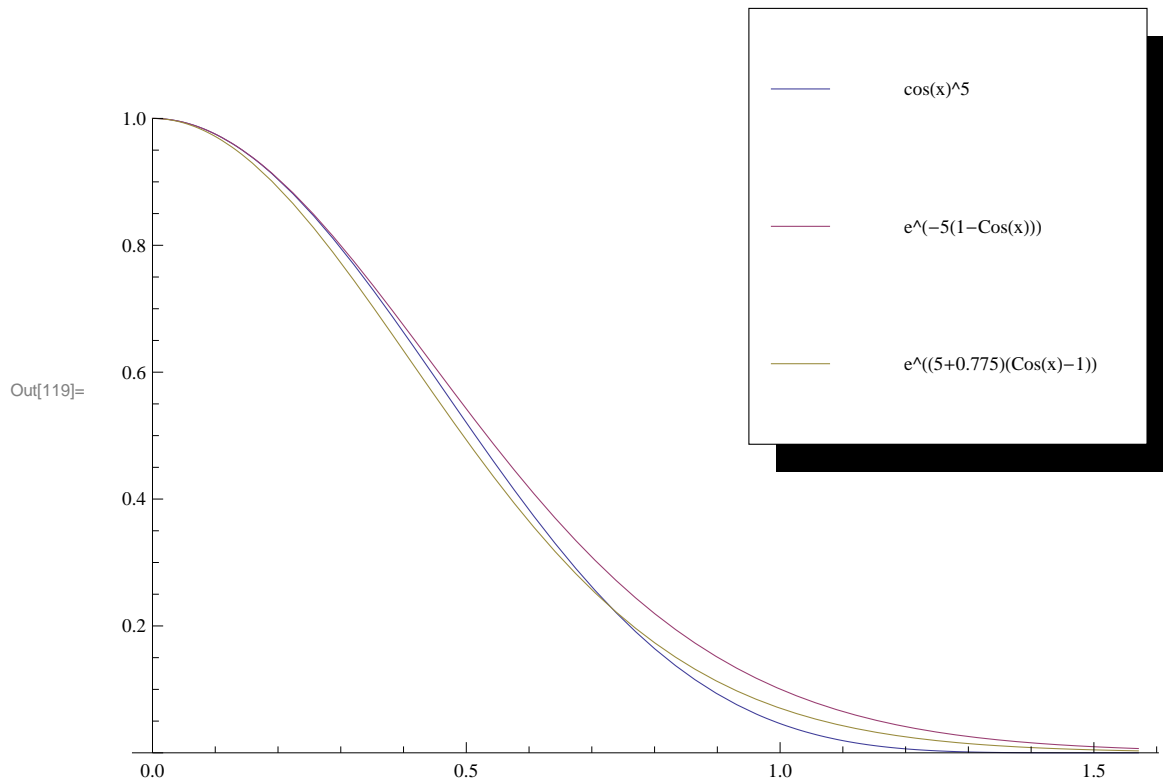
```
In[113]:= FindFit[Table[{x, x^2}, {x, 0, 1, 0.001}],
  2^((2 + a) / Log[2]) * (xx - 1), {a}, xx]
```

```
Out[113]:= {a → 0.769008}
```

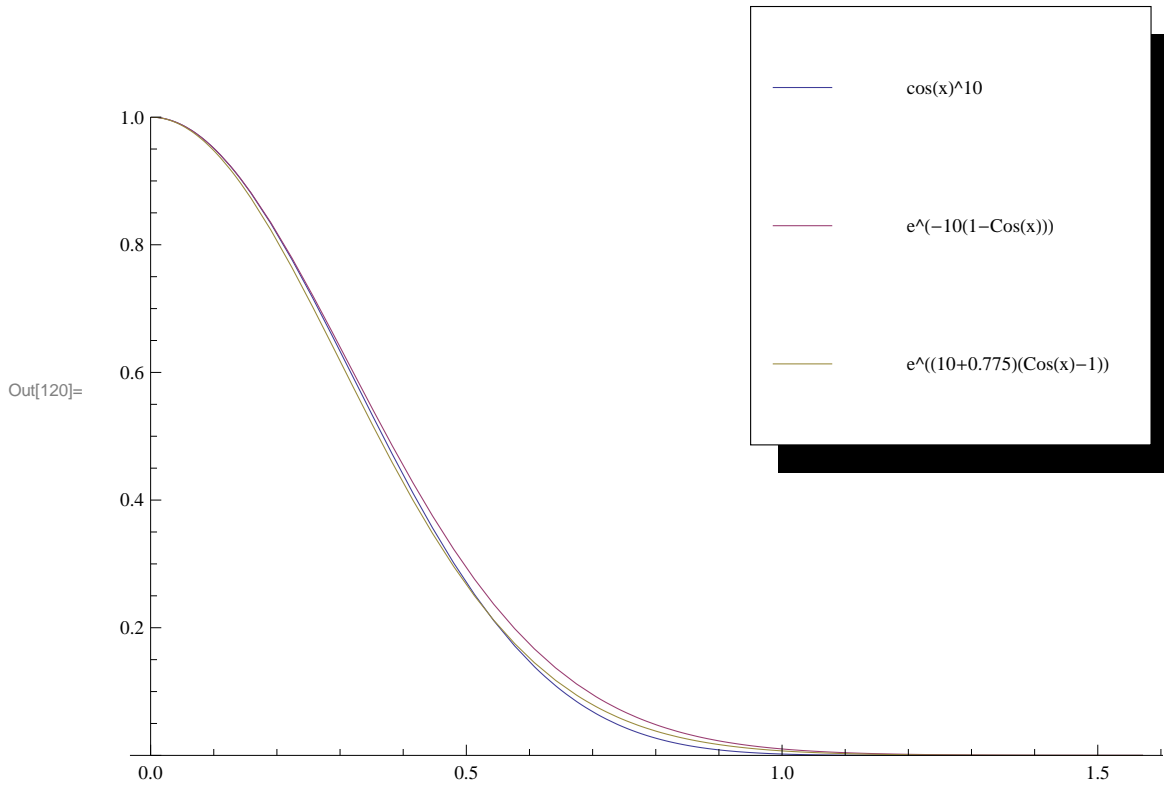
```
In[114]:= Plot[{Cos[x]^2, Exp[(2 + 0.769) (Cos[x] - 1)]}, {x, 0, π / 2}, PlotRange → {0, 1}]
```



```
In[119]:= Plot[{Cos[x]^5, Exp[-5(1-Cos[x])], Exp[(5+0.775)(Cos[x]-1)]},  
  {x, 0,  $\pi/2$ }, PlotRange -> {0, 1},  
  PlotLegend -> {"cos(x)^5", "e^(-5(1-Cos(x)))", "e^((5+0.775)(Cos(x)-1))"},  
  LegendPosition -> {0.15, 0}]
```



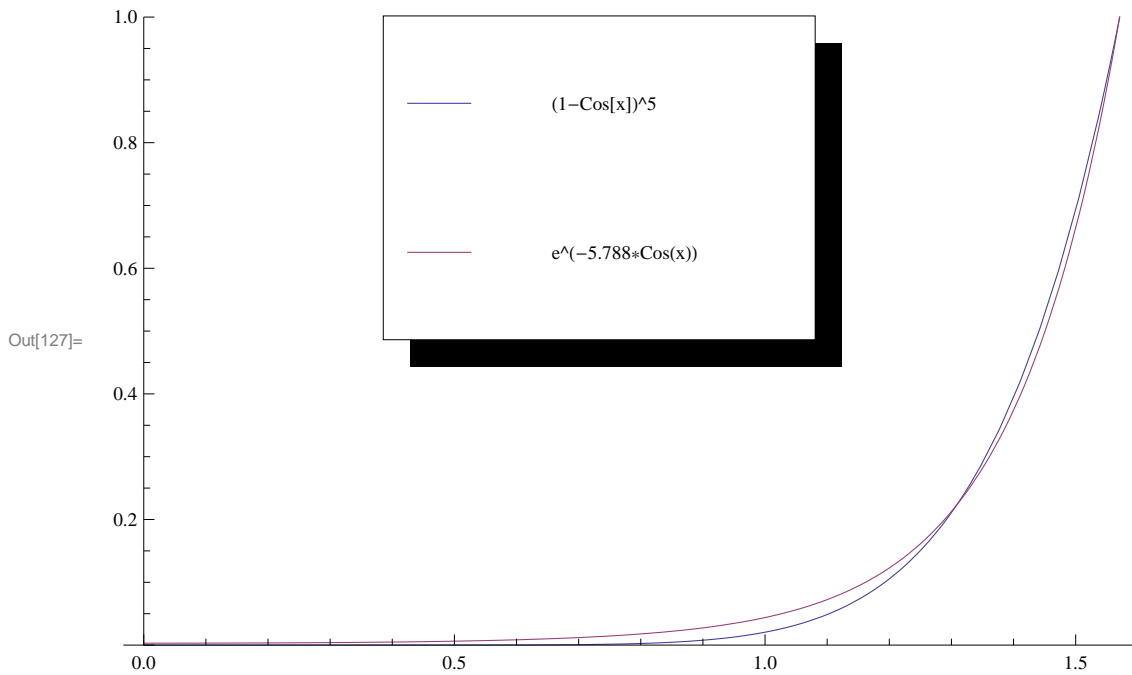
```
In[120]:= Plot[{Cos[x]^10, Exp[-10(1-Cos[x])], Exp[(10+0.775)(Cos[x]-1)]},
  {x, 0, π/2}, PlotRange -> {0, 1},
  PlotLegend -> {"cos(x)^10", "e^(-10(1-Cos(x)))", "e^((10+0.775)(Cos(x)-1))"},
  LegendPosition -> {0.15, 0}]
```



```
In[121]:= FindFit[Table[{x, x^5}, {x, 0, 1, 0.00001}],
  2^((5+a)/Log[2])*(xx-1), {a}, xx]
```

```
Out[121]= {a -> 0.787545}
```

```
In[127]:= Plot[{(1 - Cos[x])^5, Exp[-5.788 * Cos[x]]}, {x, 0, π / 2}, PlotRange -> {0, 1},
  PlotLegend -> {"(1-Cos[x])^5", "e^(-5.788*Cos(x))"}, LegendPosition -> {-0.5, 0}]
```



```
In[129]:= FindFit[Table[{x, (1 - x)^5}, {x, 0, 1, 0.0001}], 2^(a * xx^2 + b * xx), {a, b}, xx]
```

```
Out[129]= {a -> -5.55473, b -> -6.98316}
```

```
In[132]:= Plot[{(1 - Cos[x])^5, 2^(-5.55473 * Cos[x] * Cos[x] - 6.98316 * Cos[x])},
  {x, 0, π / 2}, PlotRange -> {0, 1},
  PlotLegend -> {"(1-Cos[x])^5", "2^(-5.55473*Cos(x)^2-6.98316*Cos(x))"},
  LegendPosition -> {-0.5, 0}]
```

