```
Exit[]

$Assumptions = μ > 0 && σ > 0 && a ∈ Reals && 1 > k1 ≥ 0 &&
   k0 ≥ 0 && S0 > 0 && K > 0 && r ≥ 0 && b ∈ Reals && rf ≥ 0 && γ > 0;

ost == σ Sqrt[t] ; mpr == (μ - r)/σ^2 ;
xx[W_, mpr_, ost_] := Exp[ ost W + (mpr - 1 / 2) ost^2];
Δ[k_] := 1 / 2 (1 + Erf[(-Log[k] + ost^2 / 2) / ost]) - 1 // N
Δ[0.] = 0;

γ = .1; mpr = 0.1; ost = .01;
NIntegrate[xx[w, mpr, ost] Exp[-w^2 / 2], {w, -∞, ∞}] / Sqrt[2 π] - Exp[mpr ost^2]

pr[f_] :=
  Log[NIntegrate[Exp[-γ f[xx[w, mpr, ost]] - w^2 / 2], {w, -∞, ∞}] / Sqrt[2 π] ] / -γ;
opt2[f_] := NIntegrate[Exp[-γ f[xx[w, mpr, ost]] - w^2 / 2]
    (xx[w, mpr, ost] - 1), {w, -∞, ∞}];
opt[f_] := Min[.1, Max[-.1, opt2[f]]]

h[a_] := a (# - 1) &
put[k_, a_] := h[a][#] - Max[0, k - #] &;
```

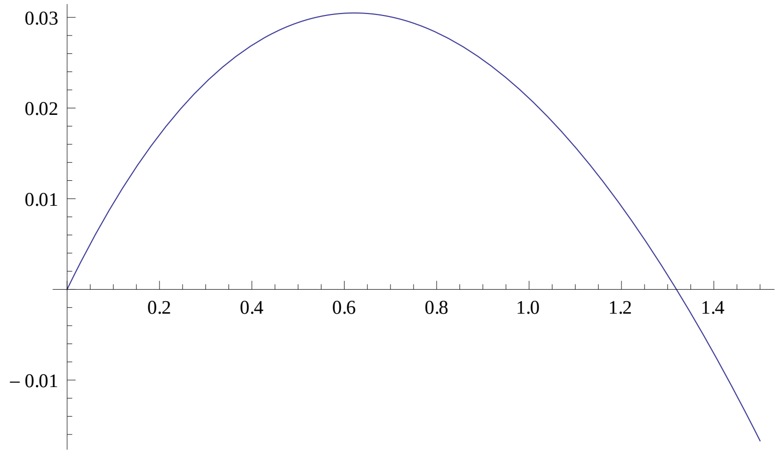
-6.54587×10^{-13}

```
γ = .1; mpr = 0.1; ost = 1; arb = Quiet[FindRoot[opt2[h[b]] == 0, {b, 0, 10}][[1, 2]]]
hedge[k_] :=
 If[opt2[put[k, 0]] ≤ 0, 0, FindRoot[opt2[put[k, a]] == 0, {a, 0, 10}][[1, 2]]]

plot[kl_] := Module[{x = Quiet[hedge[#]] & /@ kl, y, i = 1},
  y = Max[x];
  Show[ParallelTable[With[{j = i++},
     Plot[pr[put[k, a]] - put[k, a][1], {a, 0, 3 y},
      PlotStyle → {ColorData[1, "ColorList"][[j]]}
     ]], {k, kl}],
   PlotRange → All,
   Epilog → Flatten[{Directive[{Dashed, Red}],
      Table[
       {Point[{x[[i]], 0}],
        Point[{x[[i]], pr[put[kl[[i]], x[[i]]]] - put[kl[[i]], x[[i]]][1]}]}
       , {i, Length[kl]}]}]
  ]]
```

0.621583

```
Plot[{pr[h[a]]}, {a, 0, 1.5}]
```




```
$Assumptions = k ≥ 0;
```

$$f[a\_, w\_] := e^{-a\, e^{w} - w^2}$$

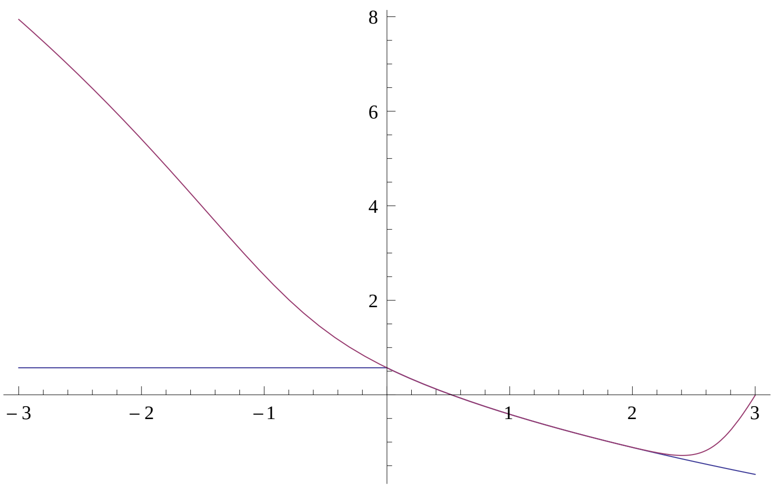
$$fc2[n\_] := NIntegrate\left[\frac{(-1)^n}{n!}\, e^{-e^{w} + n\, w - w^2}, \{w, -\infty, \infty\}\right]$$

```
fc = Evaluate[Integrate[SeriesCoefficient[f[a, w], {a, 0, k}], {w, -∞, ∞}]]
```

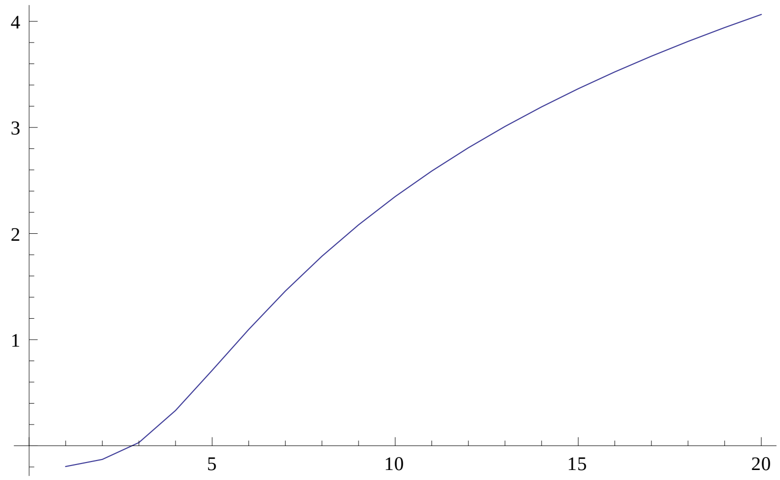
$$\frac{(-1)^k\, e^{\frac{k^2}{4}}\, \sqrt{\pi}}{k!}$$

$$g[a\_] := Log[NIntegrate[f[a, w], \{w, -\infty, \infty\}]]$$
$$gs[a\_, n\_] := Log\left[Sum\left[a^k\, fc\ /.\ k \to j, \{j, 0, n\}\right]\right]$$
$$gs2[a\_, k\_] := Log\left[fc2[0] + Sum\left[fc2[n]\, (a-1)^n, \{n, 1, k\}\right]\right]$$

```
o = -3; p = 3; l = Evaluate[gs2[a, 10]]; Plot[{g[Max[0, a]], l}, {a, o, p}]
```



```
ListLinePlot[Table[Log[Log[Abs[fc]]], {k, 1, 20}]]
```




```
fcs = Quiet[Table[fc2[n], {n, 650}]];
```

```
ListLinePlot[
 Transpose[Table[{Abs[fcs[[n]]]^(1/n), Abs[fcs[[n]] / fcs[[n + 1]]]}, {n, 1, 600}]]]
```