In[8]:=
```
$Assumptions = σ > 0 && c > 0 && m > 4 && nstar > 0 && α > 0
```

Out[8]=
$$\sigma > 0 \&\& c > 0 \&\& m > 4 \&\& nstar > 0 \&\& \alpha > 0$$

In[9]:=
```
p[ni_] := σ^2 / Sqrt[2 π] ∫_-∞^∞ Exp[-x^2/2] / ((m-2) nstar / (1+α^2 (1/ni + 1/nstar)) x^2 + ni + nstar) dx + c ni
```

In[10]:=
```
Simplify[p'[nstar]]
```

Out[10]=
$$c + \frac{1}{32\, m^2\, nstar^2\, \sqrt{2\pi}\, \alpha^3}\sigma^2 \left(2\, m\, \sqrt{2\pi}\, \alpha \left((-2+m)\, nstar - 4\, m\, \alpha^2 \right) - e^{\frac{m\, nstar}{8\alpha^2}}\, \pi \left(m\, (m\, nstar)^{3/2} + 4 \times \left(2\, \sqrt{m\, nstar} - \sqrt{m^5\, nstar} \right) \alpha^2 - 2\, m\, \sqrt{m\, nstar}\, \left(nstar - 2\, \alpha^2 \right) \right) + e^{\frac{m\, nstar}{8\alpha^2}}\, \pi \left(m\, (m\, nstar)^{3/2} + 4 \times \left(2\, \sqrt{m\, nstar} - \sqrt{m^5\, nstar} \right) \alpha^2 - 2\, m\, \sqrt{m\, nstar}\, \left(nstar - 2\, \alpha^2 \right) \right) Erf\left[\frac{\sqrt{m\, nstar}}{2\, \sqrt{2}\, \alpha} \right] \right)$$

In[11]:=
```
Simplify[p[nstar]]
```

Out[11]=
$$\frac{1}{8} \times \left(8\, c\, nstar + \frac{4\, \sigma^2}{nstar} - \frac{e^{\frac{m\, nstar}{8\alpha^2}}\, (-2+m)\, \sqrt{2\pi}\, \sigma^2\, Erfc\left[\frac{\sqrt{m\, nstar}}{2\, \sqrt{2}\, \alpha} \right]}{\sqrt{m\, nstar}\, \alpha} \right)$$