In[ ]:= **eqnsdamponres = {u'[t] == 0 - γ * u[t], v'[t] == Ωr * w[t] - γ * v[t],**
        w'[t] == -Ωr * v[t] - γ * 2 * (w[t] + 1), w[0] == -1, v[0] == 0, u[0] == 0}

Out[ ]= $\{u'[t] == -\gamma u[t], v'[t] == -\gamma v[t] + \Omega r\, w[t],$
        $w'[t] == -\Omega r\, v[t] - 2\gamma\,(1 + w[t]), w[0] == -1, v[0] == 0, u[0] == 0\}$

In[ ]:= **sol = DSolve[eqnsdamponres, {u, v, w}, t];**

In[ ]:= **pp = FullSimplify[(1 + FullSimplify[w[t] /. sol /. {Ωr → 1, γ → 1}]) / 2]**

Out[ ]= $\left\{\dfrac{1}{6} - \dfrac{1}{6}\, e^{-3\,t/2}\left(\text{Cos}\left[\dfrac{\sqrt{3}\ t}{2}\right] + \sqrt{3}\ \text{Sin}\left[\dfrac{\sqrt{3}\ t}{2}\right]\right)\right\}$

In[ ]:= **Plot[pp, {t, 0, 25}, PlotRange → All, AxesLabel → {"t", "ρbb"}]**

Out[ ]=