

$$w - \ln |ap^2 H + e^{ar}| = \ln |y| - \ln |N|$$

$$w = \ln |ap^2 H + e^{ar}| + \ln \left| \frac{y}{N} \right|$$

$$w = \ln |(ap^2 H + e^{ar}) \cdot \frac{y}{N}|$$

$$e^w = (ap^2 H + e^{ar}) \cdot \frac{y}{N}$$

$$e^w \cdot N = (ap^2 H + e^{ar}) \cdot y$$

$$e^w \cdot N = ap^2 H y + e^{ar} y$$

$$ap^2 H y = e^w N - e^{ar} y$$

$$\boxed{Happy = Ne^w - ye^{ar}}$$