In[ ]:=
$$N1[A0\_, A1\_, A2\_] = \frac{A1}{(A0 + A1 + A2)}$$

Out[ ]=
$$\frac{A1}{A0 + A1 + A2}$$

In[ ]:=
$$den = A0 + A1 + A2$$

Out[ ]=
$$A0 + A1 + A2$$

In[ ]:=
$$\text{Simplify}\left[D[N1[A0, A1, A2], A1] == \frac{1}{den}\left(1 - \frac{A1}{den}\right)\right]$$

Out[ ]=
True

In[ ]:=
$$\text{Simplify}[D[N1[A0, A1, A2], A2]] == \frac{-A1}{den^2}$$

Out[ ]=
True