13. (10 pts) In the late 1970’s, complex political pressures caused the price of refined gold to rise sharply. Let \( t \) be the time in years since 1900, and let \( H \) be the worldwide gold holdings (the total amount of gold worldwide), in tons. At \( t = 79 \), the world economy held 26,000 tons of gold. This quantity was steadily growing at approximately 500 tons per year.

Also, let \( P \) be the market price of gold in millions of dollars per ton. For times near 1979, the price \( P \) of gold was approximately:

\[
P = 9.9 + 11(t - 79)
\]

a) (2 pts) How fast was the price of gold rising in 1979?

\[
P'(79) = 11 \quad \text{(units = millions of \$/ton per year)}
\]

b) (2 pts) Let \( V \) be the dollar value of all the gold in the world. Calculate \( V \) in 1979. Include units in your answer.

\[
V(79) = H(79) \cdot P(79) = 26,000 \cdot 9.9 = \$2,574,000 \text{ million}.
\]

c) (6 pts) How fast was \( V \) changing in 1979? Answer in a meaningful sentence, with units.

We are told \( H'(79) = 500 \text{ tons/year} \).

Using the product rule:

\[
V'(79) = H'(79) \cdot P(79) + H(79) \cdot P'(79)
\]

\[
= 500 \cdot 9.9 + 26,000 \cdot 11
\]

\[
= 4950 + 286,000
\]

\[
= 2,909,500
\]

(\text{units} = \text{millions of \$/year})