

6. [14 points] The number of internet users has increased dramatically since the internet was first introduced. There were 361 million internet users worldwide in December 2000 and 817 million internet users worldwide in December 2004.³

Let $U(t)$ be the number, in millions, of internet users worldwide t years after December 1997.

Remember to show your work carefully. All numbers appearing in your answers should either be in exact form or be accurate to at least three decimal places.

- a. [3 points] Find the average rate of change of $U(t)$ between $t = 3$ and $t = 7$. Include units.

Answer: _____

- b. [4 points] Assuming that $U(t)$ is linear, find a formula for $U(t)$.

Answer: $U(t) =$ _____

According to this model, how many internet users were there in December 1997?

Answer: _____

- c. [7 points] Assuming instead that $U(t)$ is exponential, find a formula for $U(t)$.

Answer: $U(t) =$ _____

According to this model, how many internet users were there in December 1997?

Answer: _____

³Source: <http://www.internetworldstats.com>