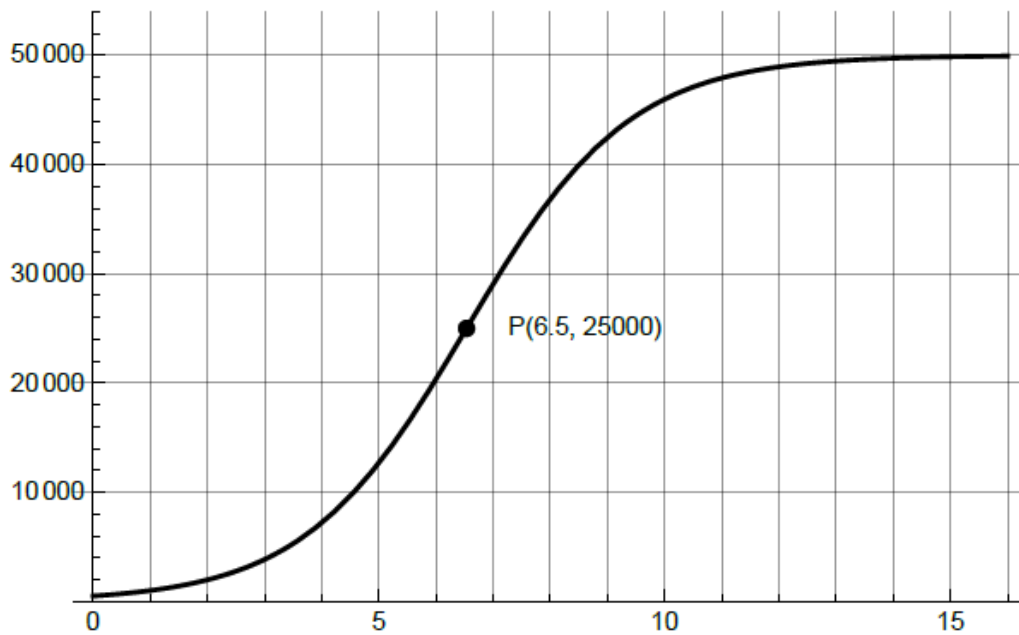


Calculus CORE Assessment – SPRING 2017

The population growth of a new suburb is modeled below, where  $x$  is the number of years after its creation.



Use the above model to answer the following questions. Perform all calculations on scratch paper. Clearly and fully answer the questions below using grammatically correct sentences.

- 1) Approximate the *instantaneous rate of change* of the population at 6 years after the suburb's inception. How did you calculate this value? Clearly explain in the space provided.

---

---

---

---

---

- 2) Approximate the *instantaneous rate of change* of the population at 13 years after the suburb's beginning. Fully interpret, in the space provided, what this value represents in this population model.

---

---

---

---

---

3) In regards to the rate of growth of the population, clearly explain what point **P** represents and why it is significant. Keep your response to 100 words or less.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, typical of notebook paper or a document template. There are no margins, text, or other markings present.