

6. [10 points] Mr. and Mrs. Johnson have 4 children: Alana, Brentley, Clarissa, and Donovan. Let $A(t)$, $B(t)$, $C(t)$, and $D(t)$ denote the height, in inches, of Alana, Brentley, Clarissa, and Donovan, respectively, at time t , measured in years since January 1, 1990. Alana was born on January 1, 1990.
- a. [3 points] Alana and Brentley are twins (i.e. they were born at the same time), but Brentley is shorter. He is always 5% shorter than Alana. Write a formula for $B(t)$ in terms of $A(t)$.

Answer: $B(t) =$ _____

- b. [3 points] Clarissa was born exactly 4 years after Alana. Clarissa is always the same height as Alana was when she was the same age. Write a formula for $C(t)$ in terms of $A(t)$.

Answer: $C(t) =$ _____

- c. [4 points] Donovan was born exactly 6 years after Brentley. However, Donovan has a larger build, and is always 4 inches taller than Brentley was at the same age. Below, you are given a portion of the graph of $y = B(t)$. The coordinates of four points on the graph are labeled. Using this information, sketch as much as possible of the graph of $y = D(t)$ on the same axes. **Label four points on your graph.**

