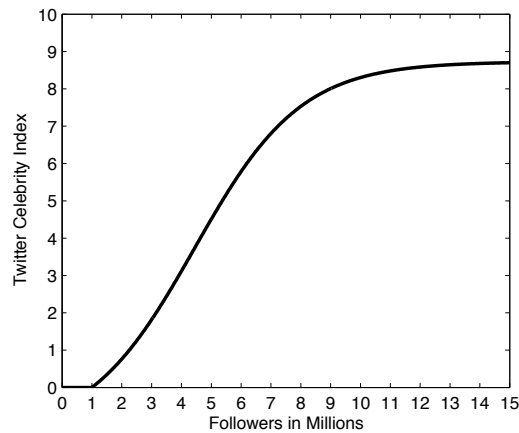


4. [12 points] The Twitter Celebrity Index (TCI) measures the celebrity of Twitter users; the function $T(x)$ takes the number of followers (in millions) of a given user and returns a TCI value from 0 to 10. Below is a graph of this function.



Use the graph above to help you answer the following questions.

- a. [3 points] Explain in practical terms what $T(13.72) = 8.67$ means.

Solution: When a Twitter user has 13.72 million followers, their Twitter Celebrity index is 8.67.

- b. [3 points] Explain in practical terms what $T^{-1}(4.25) = 4.88$ means.

Solution: When a user has a Twitter Celebrity index of 4.25, they have 4.88 million followers.

- c. [3 points] Explain in practical terms what $T'(10) = 0.2278$ means.

Solution: When a Twitter user has 10 million followers, adding 100,000 followers will increase their celebrity index by roughly .02278.

- d. [3 points] Explain in practical terms what $(T^{-1})'(7.238) = 0.71$ means.

Solution: When a Twitter user has celebrity index 7.238, and increase of .1 to their index corresponds to gaining approximately .071 million (71,000) followers.