1. Use the method of substitution to compute \( \int_{1}^{4} \frac{e^{1+\sqrt{x}}}{\sqrt{x}} \, dx \).

(You may either leave your answer simplified with \( e \)'s in it or you can give a decimal approximation.)

\[ \int_{1}^{4} \frac{e^{1+\sqrt{x}}}{\sqrt{x}} \, dx \]

1. ________________

2. Let \( I = \int_{a}^{b} f(x) \, dx \), where \( f \) is positive and concave up over the interval \([a, b]\). Indicate whether, for all \( n \geq 1 \), the statement must be true, cannot be true, or may be true.

(a) \( R_n \leq I \)  

(b) \( T_n \leq I \)
3. The graph below depicts the velocity of a bike (in mph). The distance traveled by the bike from time \( t = 1 \) to time \( t = 7 \) can be computed by calculating \( \int_{1}^{7} v(t) \, dt \).

Use the Trapezoid Rule with 4 intervals (i.e., \( n = 4 \)) to estimate the distance traveled from time \( t = 1 \) to time \( t = 7 \), i.e., to estimate \( \int_{1}^{7} v(t) \, dt \).