TMATH 125 Quiz 2

Show *all* your work (numerically, algebraically, or geometrically) for each and simplify. No credit is given without supporting work.

1. Let $g'(x) = 225e^{1.5x}$ and $g(0) = 150$.

    (a) [3] (WebHW4 #2) Find g.

    (b) [2] (indef integral wks #2) A honeybee population starts with 150 bees and grows exponentially (for a while) at a rate of $225e^{1.5t}$ were t is measured in weeks. Find the number of bees that were added between week 1 and week 5.

2. [2] (WebHW5 #5) Evaluate the indefinite integral: $\int \dfrac{\sin(\ln(13x))}{x}\, dx.$

3. [3] (§5.4 #60) Dr. Card ran a race and had his velocity tracked on the graph below. Find the total distance he ran during the race using what ever methods you like, but make sure you compute the distance exactly.

$$f(x) = \begin{cases} x(x-3) & \text{if } 0 \le x \le 3 \\ 9x - 27 & \text{if } 3 < x \le 4 \\ 9 & \text{if } 4 < x \le 7 \\ -9x + 72 & \end{cases}$$