8. [8 points]
   a. [4 points] Kesha is tasked with sourcing mahogany timber for her logging company. She finds that the cost of producing $x$ tons of timber is given by $M(x)$, measured in thousands of dollars. She knows that $M'(x) = \ln(1 + x^2)$ and that it costs 11 thousand dollars to produce 3 tons of timber. Find an expression involving an integral for $M(x)$.

   b. [4 points] Kesha finds that her department’s profit for the month, in thousands of dollars, is given by
   \[ \int_{-5}^{5} \sin(x^5) + 2 \, dx. \]
   By evaluating this integral, give a numerical figure for Kesha’s department’s profit. (Hint: What special property of the function $\sin(x^5)$ could be useful here?) Make sure to fully justify your answer.