Class Drill 9d: Rate of Change Problem (Square Root Function)

A company manufactures cameras. The weekly cost function is $C(x) = 6 + \sqrt{4x + 4}$. In this equation, x is the number of hundreds of cameras produced per week, and $C(x)$ is the cost per week, in thousands of dollars.

(A) What is the fixed cost? (exact answer, with units)

(B) What is the cost to produce 3 hundred cameras per week? (exact answer, with units)

(C) What is the marginal cost at a production level of 3 hundred cameras per week? (exact answer, with units)

(D) Use your answers to (B) and (C) to estimate the cost to produce 4 hundred cameras per week. (exact answer, with units)

(E) What is the actual cost of producing 4 hundred cameras per week? (exact answer and a decimal approximation, with units)

(F) A graph of the cost function is shown at below. Illustrate each of the quantities found in questions (A) - (E).