1. Evaluate each of the following indefinite integrals by using the given substitutions. Then Check to see if Maple can evaluate the integrals directly.

\[(i) \int \frac{\sqrt{1 + x}}{(x - 1)^{9/2}} \, dx.\]

**Hint:** Let \(x - 1 = \frac{1}{u}\)

**Note:** You will receive extra credit, if integrating without using Maple!. Must show your work.

\[(ii) \int \frac{1}{x(3x^5 + 2)} \, dx.\]

**Hint:** Rewrite the denominator as \(x^6(3 + 2x^{-5})\) and let \(u = 3 + 2x^{-5}\).

2. The complete elliptic integral of the second kind

\[E(x) = \int_0^\frac{\pi}{2} \sqrt{1 - x \sin^2(t)} \, dt, \quad 1 \leq x \leq 1\]

Graph \(y = E(x)\) over the interval \([0, 1]\), and find the value of \(x\), to five decimal places of accuracy, for which \(E(x) = 1.5\).