10. [8 points]

    a. [4 points] Let $y = f(x) = 3 \log \left(\dfrac{1 + 2x}{x + 3} \right)$. Find a formula for $f^{-1}(y)$. Show all your work carefully.

$$f^{-1}(y) = \underline{\hspace{6cm}}$$

    b. [4 points] Find all solutions to $3 \cos \left(\dfrac{t}{2} \right) + 2 = 0$ for $0 \le t \le 4\pi$ algebraically. Show all your work carefully. Your answer(s) must be in **exact form**.

    Answer(s): $\underline{\hspace{8cm}}$