1 Variables x and y are such that $y = \sin x + e^{-x}$. Use differentiation to find the approximate change in y as x increases from $\frac{\pi}{4}$ to $\frac{\pi}{4} + h$, where h is small. [4]

2 DO NOT USE A CALCULATOR IN THIS QUESTION.

The point $\left(1 - \sqrt{5}, p\right)$ lies on the curve $y = \frac{10 + 2\sqrt{5}}{x^2}$. Find the exact value of p, simplifying your answer. [5]