

Brief answer to selected problems in Homework 10

1. Section 5.4:

Problems 84: Use L'Hôpital's rule to get the limit. Answer = 2.

Problems 89: $F(x) = \int_1^{x^2} \sqrt{1-t^2} dt$. $F'(x) = 2x\sqrt{1-(x^2)^2}$. $F''(x) = \frac{2(1-3x^4)}{\sqrt{1-x^4}}$.

2. Section 5.5:

problem 79: All three are correct. One can also verify using trigonometric identities $\cos^2 \theta = 1 - \sin^2 \theta = \frac{1+\cos 2\theta}{2}$.