NAME ___________________________________________________________________

Time: 15 minutes

Instructions. This quiz will be graded for accuracy, out of 10 points. Calculators, books, notes and suchlike aides to gracious living are not permitted. Make sure to show all your work for full credit.

1. (4 points) Calculate the definite integral:
\[ \int_{0}^{\pi/2} \frac{\sin(x)}{\sqrt{\cos(x)}} \, dx. \]

2. (3 points) What is \( g'(x) \) for the following function?
\[ g(x) = \int_{-7}^{x^3} \sin^4(2t) \, dt \]
3. (3 points) An oil spill spreads in the form of a circle whose radius is increasing by \(3\sqrt{t} \text{ ft/min}\), where \(t\) = number of minutes since spill occurred. Suppose that 4 minutes after the spill the radius is 20 feet. What is the radius 9 minutes after the spill?