

No books, notes or graphing calculators. Turn off your cell phones. No partial credit for this quiz (Don't worry - this is very unusual, for the review quiz only). This quiz is TWO-SIDED. The quiz is worth 10 points, plus 2 points for the bonus problem. Good luck!

1. (a)[3pt] Find linear approximation to the function $f(x) = \arctan x$ at the point $a = 1$.

(b)[1pt] Estimate $\arctan(1.1)$. Leave you answer in exact form.

2. Evaluate the following integrals

(a)[2pt] $\int \frac{x dx}{1 - x^2}$

(b)[2pt] $\int_0^{\frac{3\pi}{2}} \sin x \cos x dx$

(c)[2pt] $\int x^2 e^x dx$

3. [2 Bonus points!] $\int_{-1}^0 \frac{dx}{x^2 + 2x + 2}$