

Final Exam

10 Points for Each !

1. Find the derivative of $f(x)$: $\frac{df(x)}{dx}$

(a) $f(x) = \int_x^1 t \sqrt{2-t^2} dt$

(b) $f(x) = \int_{\pi}^x \tan z \sec z dz$

2. Find the following indefinite integrals:

(a) $\int x \cos x^2 dx$

(b) $\int \sin 6x dx$

(c) $\int \frac{x dx}{x+2-\sqrt{x+2}}$

(d) $\int x \sqrt{2x-1} dx$

3. Find the following definite integrals:

(a) $\int_0^3 x \sqrt{2-x^2} dx$

(b) $\int_0^2 (x-3) \sqrt{3-x} dx$

(c) $\int_8^{\frac{-4}{27}} \frac{x dx}{\sqrt[3]{3+4x^2}}$

(d) $\int_1^{\frac{-1}{3}} \sqrt{4x-x^2} dx$

Happy Winter Vacation !