

Review Homework I
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Try these for Wednesday, 21 January 2015

1. Find the derivatives of each of the following functions (a, b are constants).

(a) $F(x) := \int_a^x \sin t \, dt.$

(b) $F(x) := \int_a^x \sin^3 t \, dt.$

(c) $F(x) := \int_a^{x^3} \sin^3 t \, dt.$

(d) $F(x) := \int_a^b \frac{x}{1+t^2+\sin^2 t} \, dt.$

(e) $F(x) := \int_x^a \frac{1}{1+t^2+\sin^2 t} \, dt.$

(f) $F(x) := \int_3^{\int_1^x \sin^3 t \, dt} \frac{1}{1+t^2+\sin^2 t} \, dt.$

(g) $F(x) := \int_1^x \left(\int_1^y \frac{1}{1+t^2+\sin^2 t} \, dt \right) dy.$

(h) $F(x) := \sin \left(\int_a^x \sin^3 t \, dt \right).$