

M1B/Schoenbrun Section 5.4 Fundamental Theorem of Calculus

Find the derivative of each function

$$7) g(x) = \int_1^x \frac{1}{t^3 + 1} dt$$

$$8) g(x) = \int_1^x e^{t^2 - t} dt$$

$$11) F(x) = \int_x^\pi \sqrt{1 + \sec t} dt$$

$$13) h(x) = \int_2^{1/x} \arctan(t) dt$$

$$14) h(x) = \int_0^{x^2} \sqrt{1 + r^3} dr$$

$$15) y = \int_0^{\tan x} \sqrt{t + \sqrt{t}} dt$$

$$16) y = \int_{e^x}^0 \sin^3(t) dt$$

$$18) y = \int_{\sin x}^{\cos x} (1+v^2)^{10} dv$$

24) Find the slope of the tangent line to the curve with parametric equations at the point (0,1)

$$x = \int_0^t \sqrt{1+u^3} du \qquad y = 1 + 2t + t^3$$