

HW 6.11

P: 310 #1, 5, 9, 21, 23

#1 $y = \int_0^x (\sin^2 t) dt$
 $\frac{dy}{dx} = \boxed{\sin^2(x)}$

#5 $y = \int_2^x (\tan^3 u) du \rightarrow \frac{dy}{dx} = \boxed{\tan^3 x}$

#9 $y = \int_0^{x^2} e^{t^2} dt \rightarrow \frac{dy}{dx} = \frac{d}{dx} \left[\int_0^{x^2} e^{t^2} dt \right] = \cancel{2x} 2x(e^{x^2})$

#21 $\frac{dy}{dx} = \sin^3 x$ P: (5, 0) $y = \int_5^x (\sin^3 t) dt + 0$

#23 $\frac{dy}{dx} = \ln(\sin(x+5))$ P: (2, 3) $y = \int_2^x \ln(\sin(t)+5) dt + 3$