

MAT 141
DERIVATIVES

Please compute the derivatives of each of the following functions:

$$f(x) = 3$$

$$g(x) = 5x^2$$

$$h(x) = x^2 - 2x + 1$$

$$l(t) = t^\pi$$

$$s(t) = \frac{1}{4}t^{2/3}$$

$$w(y) = \sqrt[5]{y}$$

$$k(x) = \frac{x^2 + x - x^4}{\sqrt{x}}$$

$$A(u) = \frac{u^2 - 1}{u}$$

$$B(x) = \frac{x^{4/3}}{x^2 + x^3}$$

$$P(r) = (r + 1)^{11} \sqrt{(r + 1)^3}$$

$$z(x) = |x|$$

$$g(x) = [x]$$

$$h(x) = \sqrt{x} + \sqrt{y}$$

$$u(s) = \sqrt{s^2 + s + 1}$$

$$k(x) = \tan x$$

$$f(z) = \frac{z}{z + \frac{1}{z}}$$

$$l(x) = \cot x$$

$$m(x) = \sec(2x)$$

$$q(t) = \cos(3t + 1)$$

$$T(x) = \frac{1}{\tan x}$$

$$f(x) = \sin(\sqrt{x + 1})$$

$$b(x) = \sin(\sin x)$$

$$y(x) = (\sin x)^3 + 2(\sin x)^2 + 3 \sin x - 5$$

$$b(t) = 2e^{2t} + e^t + 14$$

$$p(x) = x^{\sin x}$$

$$r(s) = 10^{s^2+s}$$

$$t(y) = \exp(\sin x)$$

$$c(v) = \tan^{-1} v$$

$$a(x) = (x + 1)^{10}(x - 1)^{14} \sin^2 x$$

$$g(l) = \cos^{-1}(2l + 3)$$

$$G(x) = \int_0^{2x} \sin^2 t \, dt$$

$$j(x) = \sqrt{3x + 5} \sqrt{\sin x}$$

$$m(x) = \ln(x^2 + 2x + 1)$$