Solutions to derivatives:

$f(x) = x^2 - 10x + 100$
$f'(x) = 2x - 10$

$g(x) = x^{100} + 50x + 1$
$g'(x) = 100x^{99} + 50$

$V(r) = \frac{4}{3}\pi r^3$
$V'(r) = 4\pi r^2$

$s(t) = t^8 + 6t^7 - 18t^2 + 2t$
$s'(t) = 8t^7 + 42t^6 - 36t + 2$

$F(x) = (16x)^3$
$F'(x) = 12288x^2$

$G(y) = (y^2 + 1)(2y - 7)$
$G'(y) = 2y(2y - 7) + (y^2 + 1)2$

$Y(t) = bt^{-9}$
$Y'(t) = -9bt^{-10}$

$R(x) = \dfrac{\sqrt{10}}{x^7}$
$R'(x) = -7\sqrt{10}x^{-8}$

$g(x) = x^2 + \dfrac{1}{x}$
$g'(x) = 2x - \frac{1}{x^2}$

$f(t) = \sqrt{t} - \dfrac{1}{\sqrt{t}}$
$f'(t) = \frac{1}{2}t^{-1/2} + \frac{1}{2}t^{-3/2}$

$h(x) = \dfrac{x+2}{x-1}$
$h'(x) = \frac{(x-1)-(x+2)}{(x-1)^2}$

$f(u) = \dfrac{1-u^2}{1+u^2}$
$f'(u) = \frac{(1+u^2)(-2u)-(1-u^2)(2u)}{(1+u^2)^2}$

$G(s) = (s^2 + s + 1)(s^2 + 2)$
$G'(s) = 4s^3 + 3s^2 + 6s + 2$

$H(t) = \sqrt[3]{t}(t + 2)$
$H'(t) = \frac{1}{3}t^{-2/3}(t + 2) + t^{1/3}$

$y = \dfrac{x^2 + 4x + 3}{\sqrt{x}}$
$y' = \frac{\sqrt{x}(2x+4)-(x^2+4x+3)(1/2)x^{-1/2}}{x}$

$y = \dfrac{\sqrt{x} - 1}{\sqrt{x} + 1}$
$y' = \frac{(\sqrt{x}+1)(\frac{1}{2}x^{-1/2})-(\sqrt{x}-1)(\frac{1}{2}x^{-1/2})}{(\sqrt{x}+1)^2}$

$y = \sqrt{5x}$
$y' = \sqrt{5}\frac{1}{2}x^{-1/2}$

$y = x^{4/3} - x^{2/3}$
$y' = \frac{4}{3}x^{1/3} - \frac{2}{3}x^{-1/3}$

$y = \dfrac{1}{x^4 + x^2 + 1}$
$y' = \frac{-(4x^3+2x)}{(x^4+x^2+1)^2}$

$y = x^2 + x + x^{-1} + x^{-2}$
$y' = 2x + 1 - \frac{1}{x^2} - \frac{2}{x^3}$

$y = ax^2 + bx + c$
$y' = 2ax + b$

$y = A + \frac{B}{x} + \frac{C}{x^2}$
$y' = \frac{-B}{x^2} - \frac{2C}{x^3}$

$y = \dfrac{3t - 7}{t^2 + 5t - 4}$
$y' = \frac{(t^2+5t-4)(3)-(3t-7)(2t+5)}{(t^2+5t-4)^2}$

$y = \dfrac{4t + 5}{2 - 3t}$
$y' = \frac{4(2-3t)-(4t+5)(-3)}{(2-3t)^2}$

$y = x + \sqrt[5]{x^2}$
$y' = 1 + \frac{2}{5}x^{-3/5}$

$y = x^4 - \sqrt[4]{x}$
$y' = 4x^3 - \frac{1}{4}x^{-3/4}$

$u = x^{\sqrt{2}}$
$u' = \sqrt{2}x^{\sqrt{2}-1}$

$u = \sqrt[3]{t^2} + 2\sqrt{t^3}$
$u' = \frac{2}{3}t^{-1/3} + 3t^{1/2}$

$v = x\sqrt{x} + \dfrac{1}{x^2\sqrt{x}}$
$v' = \frac{3}{2}x^{1/2} - \frac{5}{2}x^{-7/2}$

$v = \dfrac{6}{\sqrt[3]{t^5}}$
$v' = 6(-\frac{5}{3}t^{-8/3})$

$y = \dfrac{x}{x + \frac{c}{x}}$
$y' = \frac{(x+\frac{c}{x})-x(1-\frac{c}{x^2})}{(x+\frac{c}{x})^2}$

$y = \dfrac{ax + b}{cx + d}$
$y' = \frac{a(cx+d)-c(ax+b)}{(cx+d)^2}$

$y = \dfrac{x^5}{x^3 - 2}$
$y' = \frac{5x^4(x^3-2)-x^5(3x^2)}{(x^3-2)^2}$