

Assume that the variable for differentiation is x , $f'(x) = d(f(x))/dx$.

0. The derivative of a constant is zero.

1. Constant times function rule $(c f(x))' = c f'(x)$ for a constant c

2. Sum rule $(f(x) + g(x))' = f'(x) + g'(x)$

3. Difference rule $(f(x) - g(x))' = f'(x) - g'(x)$

4. Product rule $(f(x)g(x))' = f'(x)g(x) + f(x)g'(x)$

5. Quotient rule $\frac{d}{dx} \left(\frac{f(x)}{g(x)} \right) = \frac{f'(x)g(x) - f(x)g'(x)}{(g(x))^2}$

6. Chain rule $(f(g(x)))' = f'(g(x))g'(x)$

7. Power rules $(x^p)' = p x^{p-1}$ for a constant p
 $((f(x))^p)' = p(f(x))^{p-1} f'(x)$ for a constant p

8. e rules $(e^{f(x)})' = e^{f(x)} f'(x)$
 $(b^{f(x)})' = \ln(b) b^{f(x)} f'(x)$ for a positive constant b

9. Logarithmic rules $(\ln(f(x)))' = f'(x)/f(x)$
 $(\log_b(f(x)))' = f'(x)/(\ln(b)f(x))$ for a positive constant b

10. Trig rules $(\sin(f(x)))' = \cos(f(x)) f'(x)$
 $(\cos(f(x)))' = -\sin(f(x)) f'(x)$
 $(\tan(f(x)))' = f'(x)/(\cos(f(x)))^2$

11. Inverse trig rules $(\arcsin(f(x)))' = f'(x)/(1 - (f(x))^2)^{1/2}$
 $(\arctan(f(x)))' = f'(x)/(1 + (f(x))^2)$