

### Differentiation

f(x)	f'(x)
sin x	cos x
cos x	- sin x
tan x	sec <sup>2</sup> x
cosec x	- cosec x cot x
sec x	sec x tan x
cot x	- cosec <sup>2</sup> x
ln x	1 / x

### Trig Identities

cosec x	1 / sin x
sec x	1 / cos x
cot x	1 / tan x
cos <sup>2</sup> x + sin <sup>2</sup> x	1
sec <sup>2</sup> x	1 + tan <sup>2</sup> x
cosec <sup>2</sup> x	1 + cot <sup>2</sup> x

### Inverse a function

1. Replace f(x) with y
2. Rearrange for x
3. Replace x with f<sup>-1</sup>(x) and y with x
4. Swap the domain and range of the function

### Differentiation rules

If  $y = f(u)$  and  $u = g(x)$   $dy/dx = dy/du \times du/dx$

If  $y = u(x)v(x)$   $dy/dx = u(dv/dx) + v(du/dx)$

If  $y = u(x)/v(x)$   $dy/dx =$

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Page 1 of 1.

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