# MATH112

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# Contents

# Chapter 1

# Integration

Integration is the anti-derivative of a function.

$$\frac{d}{dx}(F(x)) = f(x) \leftrightarrow \int f(x) = F(x)$$

## 1.1 Basic integration formulas

| $\int$ | $\frac{d}{dx}$ |
|---|---|
| $x^n \cdot dx$ | $\frac{x^{n+1}}{n+1}$ |
| $\frac{1}{f(x)} \cdot dx$ | $\ln(f'(x))$ |
| $a^x \cdot dx$ | $\frac{a^x}{\ln(a)}$ |

## 1.2 Basic trignometric identites

| | |
|---|---|
| $\sin^2(x) + \cos^2(x)$ | 1 |
| $\cosh^2(x) - \sinh^2(x)$ | 1 |
| $\sec^2(x) - \tan^2(x)$ | 1 |
| $\tanh^2(x) + \text{sech}^2(x)$ | 1 |
| $\csc^2(x) - \cot^2(x)$ | 1 |