# MATHEMATICS 31

**Mr. M Cherney**

## COURSE OUTLINE 2025-2026

| | | | |
|---|---|---|---|
| Ch 1 Algebra | 9(11 1st FR)-8 Classes | 9(11) School Days | Sept 2 – Sept 24 |
| Ch 2 Limits | 7-5 Classes | 7 School Days | Oct 1 – Oct 20 |
| Ch 3 Derivatives | 9-7 Classes | 9 School Days | Oct 26 – Nov 12 |
| Ch 4 Advanced Derivatives | 9-5 Classes | 9 School Days | Nov 17 – Dec 3 |
| Ch 5 Curve Sketching | 14-7 Classes | 14 School Days | Dec 8 – Feb 4 |
| Ch 6 Derivative Applications | 9-6 Classes | 9 School Days | Feb 9 – Mar 4 |
| Ch 7 Antiderivatives | 11-8 Classes | 11 School Days | Mar 9 – Apr 15 |
| Ch 8 Integration Applications | 6-5 Classes | 6 School Days | Apr 20 – Apr 29 |
| Course Review/Final | 14(16 OE)-12 Classes | 14(16) School Days | May 4 – June 12 |
| | 88(63) Classes | 88(92) School Days | |

**Final**

| | |
|---|---|
| Final Exam | May 4 – June 12 |

## COURSE MARKING 2025-2026

| Heading | Date | Weight | Points Earned (%) | Percent (%) |
|---|---|---|---|---|
| | | | | |
| **Course Work** | | 70 | | |
| **Tests** | | 95 | | |
| Chapter 1 Algebra | | 10 | | |
| Chapter 2 Limits | | 10 | | |
| Chapter 3 Derivatives | | 15 | | |
| Chapter 4 Advanced Derivatives | | 10 | | |
| Chapter 5 Curve Sketching | | 15 | | |
| Chapter 6 Derivative Applications | | 15 | | |
| Chapter 7 Antiderivatives | | 15 | | |
| Chapter 8 Integration Applications | | 10 | | |
| **Homework** | | 5 | | |
| **Final Exam** | | 30 | | |
| **Final Grade** | | | | |

**Daily Homework** for each assignment is due the day after it is assigned and at the latest the day of the test for that chapter. It will be marked for completeness, 1 mark for each completed question out of the total assigned questions. Incorrect questions should be corrected.

**Review Summary Sheets** are given for each chapter and can be used as 'I Can' statements to self assess learning or as review sheets for content covered in the chapter.

**Tests** may be rewritten on a chapter which will be scheduled on the day before the next chapter test. Your best score up to 79% will be taken on rewrites.

**Extra Help** or a quiet place to work is available during any lunch hour in my room through out the year on a come and go as you need help basis.

## Extra Practice

From Text Book

| | | |
|---|---|---|
| Chapter 1 | Lesson 2 | Pg 66 Question 1 |
| | | Pg 67 Questions 1 – 2 |
| | Lesson 3 | Pg 206 Questions 1 – 2 |
| | Lesson 4 | Pg 163 Questions 1 – 2 |
| | | Pg 166 Questions 1 – 2 |
| | Lesson 5 | Pg 116 Questions 1 – 2 |
| | Lesson 8 | Pg 267 – 269 Questions 1 – 3, 5 |
| | | Pg 273 – 275 Questions 2, 3, 5, 6, 7, 8, 10, 11 |
| | | Pg 279 – 280 Questions 5, 7, 8, 10, 11 |
| | | Pg 284 – 287 Questions 1, 3, 7, 11, 13, 15, 19, 20, 23, 27, 29, 35, 40, 45, 56 |
| | | Pg 291 – 292 Questions 1 – 4 |
| Chapter 2 | Lesson 1 | Pg 56 – 57 Questions 1 – 5 |
| | | Pg 50 – 51 Questions 1 – 6, 8 |
| | Lesson 2 | Pg 18 – 20 Questions 1 – 6 |
| | | Pg 27 – 29 Questions 1 – 4, 6, 8, 12 |
| | Lesson 4 | Pg 9 – 10 Questions 7 – 11 |
| | | Pg 35 Question 7 |
| | | Pg 43 – 44 Questions 1, 3, 8 |
| Chapter 3 | Lesson 1 | Pg 75 – 77 Questions 1 – 7, 9, 11 |
| | Lesson 2 | Pg 83 – 84 Questions 1 – 4, 7 – 9 |
| | Lesson 3 | Pg 88 – 89 Questions 1, 4, 6 – 9 |
| | | Pg 92 – 93 Questions 2, 6 – 8 |
| | Lesson 4 | Pg 95 – 96 Questions 2, 4, 7, 8 |
| | Lesson 5 | Pg 102 – 103 Questions 1, 3 – 5, 7, 9, 10 |
| | Lesson 6 | Pg 107 – 108 Questions 1 – 3 |
| | Lesson 7 | Pg 111 Questions 1 – 7 |
| Chapter 4 | Lesson 1 | Pg 306 – 307 Questions 1 – 38 even |
| | Lesson 2 | Pg 313 – 315 Questions 1 – 5, 7, 8 |
| | Lesson 3 | Pg 319 – 320 Questions 1 – 3, 9 |
| | Lesson 5 | Pg 361 – 362 Questions 4, 5, 7 |
| | | Pg 366 – 368 Questions 1, 3 – 11 |
| | | Pg 375 – 376 Questions 3 – 10, 17, 18 |
| | | Pg 383 – 384 Questions 1 – 8 |

| | | |
|---|---|---|
| Chapter 5 | Lesson 2 | Pg 170 – 171 Questions 1 – 5 |
| | | Pg 176 – 177 Questions 1, 2, 4 – 8 |
| | | Pg 182 Questions 1, 3, 4, 6 |
| | Lesson 3 | Pg 229 – 230 Questions 1 – 3, 6 – 8 |
| | | Pg 240 Questions 1 – 3, 7, 9, 12 |
| | Lesson 4 | Pg 232 Questions 1 – 3 |
| | | Pg 188 – 191 Questions 1 – 20 odd |
| | | Pg 212 – 213 Questions 1 – 5 |
| | Lesson 5 | Pg 222 – 223 Questions 1, 2, 4 – 6, 8 – 11 |
| | Lesson 6 | Pg 244 Questions 1 – 3 |
| Chapter 6 | Lesson 1 | Pg 188 – 191 Questions 1 – 20 odd |
| | Lesson 2 | Pg 124 – 126 Questions 1 – 9 |
| | | Pg 128 – 129 Questions 1 – 9 |
| | Lesson 3 | Pg 134 – 135 Questions 1 – 9 |
| | | Pg 145 – 146 Questions 1 – 17 |
| | Lesson 4 | Pg 139 – 140 Questions 1 – 6 |
| | | Pg 195 – 196 Questions 1 – 8 |
| | Lesson 5 | Pg 390 – 392 Questions 1 – 14 even |
| | Lesson 6 | Pg 152 Questions 1 – 8 |
| Chapter 7 | Lesson 1 | Pg 408 – 409 Questions 1 – 5 |
| | Lesson 3 | Pg 411 – 412 Questions 1, 2, 3, 5, 6 |
| | | Pg 415 Questions 1 – 5 |
| | | Pg 420 – 421 Questions 1 – 7 |
| | | Pg 437 – 438 Questions 1, 2, 3, 7 |
| | Lesson 4 | Pg 454 – 455 Questions 1 – 3 |
| | | Pg 465 – 466 Questions 1 – 4 |
| | Lesson 5 | Pg 500 Questions 2 – 5 |
| | | Pg 505 – 506 Questions 1 – 4 |
| | Lesson 7 | Pg 461 Question 1 |
| Chapter 8 | Lesson 1 | Pg 474 – 475 Questions 1 – 3 |
| | | Pg 500 Questions 2 – 5 |
| | Lesson 2 | Pg 511 – 512 Questions 3, 4 |

# CALCULUS FORMULA SHEET

Graphing Calculator Window Format $x[x_{\min}, x_{\max}, x_{scl}]$ $y[y_{\min}, y_{\max}, y_{scl}]$

## Properties of Limits

$$\lim_{x\to a}[f(x)+g(x)] = \lim_{x\to a} f(x) + \lim_{x\to a} g(x)$$
$$\lim_{x\to a}[f(x)-g(x)] = \lim_{x\to a} f(x) - \lim_{x\to a} g(x)$$
$$\lim_{x\to a}[cf(x)] = c\lim_{x\to a} f(x)$$
$$\lim_{x\to a}[f(x)g(x)] = \lim_{x\to a} f(x)\lim_{x\to a} g(x)$$
$$\lim_{x\to a}\left[\frac{f(x)}{g(x)}\right] = \frac{\lim_{x\to a} f(x)}{\lim_{x\to a} g(x)}$$
$$\lim_{x\to a}[f(x)]^n = \left[\lim_{x\to a} f(x)\right]^n, n>0$$
$$\lim_{x\to a}\sqrt[n]{f(x)} = \sqrt[n]{\lim_{x\to a} f(x)}$$
$$\lim_{x\to a} c = c \qquad \lim_{x\to a} x = a$$
$$\lim_{x\to a} x^n = a^n \qquad \lim_{x\to a}\sqrt[n]{x} = \sqrt[n]{a}$$
$$\lim_{x\to a} P(x) = P(a)$$
$$\lim_{x\to a}\frac{P(x)}{Q(x)} = \frac{P(a)}{Q(a)}$$

if $\lim_{x\to a^-} f(x) \neq \lim_{x\to a^+} f(x)$,
then $\lim_{x\to a} f(x)$ does not exist

if $\lim_{x\to a^-} f(x) = L = \lim_{x\to a^+} f(x)$,
then $\lim_{x\to a} f(x) = L$

$$\lim_{n\to\infty}\left(\frac{1}{n}\right)^r = 0,\ r>0$$
$$\lim_{n\to\infty} r^n = 0,\ |r|<1$$
$$\lim_{n\to\infty} S_n = \frac{a}{1-r},\ |r|<1$$

## Properties and Rules of Derivatives

$$f'(x) = \lim_{h\to 0}\frac{f(x+h)-f(x)}{h}$$

$$\frac{d}{dx}(c) = 0$$
$$\frac{d}{dx}[cf(x)] = c\frac{d}{dx}f(x)$$
$$\frac{d}{dx}[f(x)+g(x)] = \frac{d}{dx}f(x) + \frac{d}{dx}g(x)$$
$$\frac{d}{dx}[f(x)-g(x)] = \frac{d}{dx}f(x) - \frac{d}{dx}g(x)$$
$$\frac{d}{dx}[f(x)g(x)] = f(x)\frac{d}{dx}g(x) + g(x)\frac{d}{dx}f(x)$$
$$\frac{d}{dx}\left[\frac{f(x)}{g(x)}\right] = \frac{g(x)\frac{d}{dx}f(x) - f(x)\frac{d}{dx}g(x)}{[g(x)]^2}$$
$$\frac{d}{dx}[f(g(x))] = f'(g(x))\frac{d}{dx}g(x)$$
$$\frac{d}{dx}(x^n) = nx^{n-1}$$
$$\frac{d}{dx}[g(x)]^n = n[g(x)]^{n-1}g'(x)$$

$$s = f(t)$$
$$v = \frac{ds}{dt} = f'(t)$$
$$a = \frac{dv}{dt} = \frac{d^2s}{dt^2} = f''(t)$$

*Newton's Method*

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

## Curve Sketching

if $f'(x) > 0$ on $I$, then $f$ is increasing on $I$
if $f'(x) < 0$ on $I$, then $f$ is decreasing on $I$

$f'(x) = 0$ is a local max or min
or critical number

$\lim_{x \to a} f(x) = \pm\infty$ is a vertical asymptote
$\lim_{x \to \pm\infty} f(x) = L$ is a horizontal asymptote

if $f''(x) > 0$ on $I$,
then $f$ is concave up on $I$

if $f''(x) < 0$ on $I$,
then $f$ is concave down on $I$

if $f''(x) = 0$ on $I$,
then $x$ is a possible inflection point

if $f'(c) = 0$ and $f''(c) > 0$,
then $c$ is a local minimum

if $f'(c) = 0$ and $f''(c) < 0$,
then $c$ is a local maximum

Slant asymptotes are found by division

$x-$ intercepts $(x,0)$

$y-$ intercepts $(0,y)$

*DR M₂I₂ ACIDS*

- Domain and Range
- Maximums
- Minimums
- Intercepts
- Inflection
- Asymptotes
- Concavity
- Increasing
- Decreasing
- Symmetry

## Algebraic Relations

$$a^2 - b^2 = (a-b)(a+b)$$
$$a^3 - b^3 = (a-b)(a^2+ab+b^2)$$
$$a^3 + b^3 = (a+b)(a^2-ab+b^2)$$

sigma properties

$$\sum_{i=1}^{n} c = c + c + c + \ldots + c = nc$$

$$\sum_{i=1}^{n} ct_i = c\sum_{i=1}^{n} t_i$$

$$\sum_{i=1}^{n} (t_i + s_i) = \sum_{i=1}^{n} t_i + \sum_{i=1}^{n} s_i$$

arithmetic series $t_n = a + (n-1)d$

$$S_n = a + (a+d) + (a+2d) + \ldots + [a + (n-1)d]$$
$$= \frac{n}{2}\left(2a + (n-1)d\right) = \frac{n(a+t_n)}{2}$$

geometric series $t_n = ar^{n-1}$

$$S_n = a + ar + ar^2 + \ldots + ar^{n-1}$$
$$= \frac{a(r^n - 1)}{r-1} = \frac{rt_n - a}{r-1}$$

$$S = \frac{a}{1-r}, \quad |r| < 1$$

natural numbers

$$\sum_{i=1}^{n} i = \frac{n(n+1)}{2}$$

natural number squares

$$\sum_{i=1}^{n} i^2 = \frac{n(n+1)(2n+1)}{6}$$

natural number cubes

$$\sum_{i=1}^{n} i^3 = \frac{n^2(n+1)^2}{4}$$

## Trigonometric Identities

*Reciprocal Identities*

$$\csc x = \frac{1}{\sin x} \quad \sec x = \frac{1}{\cos x} \quad \cot x = \frac{1}{\tan x}$$

*Quotient Identities*

$$\tan x = \frac{\sin x}{\cos x} \quad \cot x = \frac{\cos x}{\sin x}$$

*Pythagorean Identities*

$$\sin^2 x + \cos^2 x = 1$$
$$\sec^2 x = 1 + \tan^2 x$$
$$\csc^2 x = 1 + \cot^2 x$$

*Sum and Difference Identities*

$$\sin(x+y) = \sin x \cos y + \cos x \sin y$$
$$\sin(x-y) = \sin x \cos y - \cos x \sin y$$
$$\cos(x+y) = \cos x \cos y - \sin x \sin y$$
$$\cos(x-y) = \cos x \cos y + \sin x \sin y$$
$$\tan(x+y) = \frac{\tan x + \tan y}{1 - \tan x \tan y}$$
$$\tan(x-y) = \frac{\tan x - \tan y}{1 + \tan x \tan y}$$

*Double Angle Identities*

$$\sin 2x = 2 \sin x \cos x$$
$$\cos 2x = \cos^2 x - \sin^2 x$$
$$= 2\cos^2 x - 1$$
$$= 1 - 2\sin^2 x$$
$$\tan 2x = \frac{2 \tan x}{1 - \tan^2 x}$$

*Half Angle Identities*

$$\cos\frac{x}{2} = \pm\sqrt{\frac{1}{2} + \frac{\cos x}{2}}$$
$$\sin\frac{x}{2} = \pm\sqrt{\frac{1}{2} - \frac{\cos x}{2}}$$

*Related Angle Identities*

$$\sin(\pi - x) = \sin x \qquad \sin(2\pi - x) = -\sin x$$
$$\cos(\pi - x) = -\cos x \qquad \cos(2\pi - x) = \cos x$$
$$\tan(\pi - x) = -\tan x \qquad \tan(2\pi - x) = -\tan x$$

$$\sin(\pi + x) = -\sin x \qquad \sin(-x) = -\sin x$$
$$\cos(\pi + x) = -\cos x \qquad \cos(-x) = \cos x$$
$$\tan(\pi + x) = \tan x \qquad \tan(-x) = -\tan x$$

*Corelated Angle Identities*

$$\sin\left(\frac{\pi}{2} - x\right) = \cos x \qquad \sin\left(\frac{3\pi}{2} - x\right) = -\cos x$$
$$\cos\left(\frac{\pi}{2} - x\right) = \sin x \qquad \cos\left(\frac{3\pi}{2} - x\right) = -\sin x$$
$$\tan\left(\frac{\pi}{2} - x\right) = \cot x \qquad \tan\left(\frac{3\pi}{2} - x\right) = \cot x$$

$$\sin\left(\frac{\pi}{2} + x\right) = \cos x \qquad \sin\left(\frac{3\pi}{2} + x\right) = -\cos x$$
$$\cos\left(\frac{\pi}{2} + x\right) = -\sin x \qquad \cos\left(\frac{3\pi}{2} + x\right) = \sin x$$
$$\tan\left(\frac{\pi}{2} + x\right) = -\cot x \qquad \tan\left(\frac{3\pi}{2} + x\right) = -\cot x$$

## Limits of Trigonometric Functions

$$\lim_{\theta\to 0}\sin\theta = 0$$

$$\lim_{\theta\to 0}\cos\theta = 1$$

$$\lim_{\theta\to 0}\frac{\sin\theta}{\theta} = 1 \qquad \lim_{\theta\to 0}\frac{\theta}{\sin\theta} = 1$$

$$\lim_{\theta\to 0}\frac{\cos\theta - 1}{\theta} = 0 \qquad \lim_{\theta\to 0}\frac{1-\cos\theta}{\theta} = 0$$

## Derivatives of Trigonometric Functions

$$\frac{d}{dx}\sin x = \cos x$$

$$\frac{d}{dx}\cos x = -\sin x$$

$$\frac{d}{dx}\tan x = \sec^2 x$$

$$\frac{d}{dx}\csc x = -\csc x\cot x$$

$$\frac{d}{dx}\sec x = \sec x\tan x$$

$$\frac{d}{dx}\cot x = -\csc^2 x$$

## Derivative Applications in Economics

$C(x) = \text{Cost Function}$

$C'(x) = \text{Marginal Cost Function}$

$p(x) = \text{Price or Demand Function}$

$R(x) = xp(x) = \text{Revenue Function}$

$R'(x) = \text{Marginal Revenue Function}$

$P(x) = R(x) - C(x) = \text{Profit Function}$

$C'(x) = R'(x) = \text{Maximum Profit}$

$$c(x) = \frac{C(x)}{x} = \text{Ave Cost Function}$$

$$C'(x) = \frac{C(x)}{x} = \text{Average Cost Min}$$

## Limits/Derivatives of Exponential Functions

$$y = b^x$$

$$y' = \lim_{h\to 0}\frac{b^{x+h} - b^x}{h} = b^x \lim_{h\to 0}\frac{b^h - 1}{h}$$

$$\lim_{h\to 0}\frac{e^h - 1}{h} = 1$$

$$\lim_{x\to 0}(1+x)^{\frac{1}{x}} = e = \lim_{n\to\infty}\left(1+\frac{1}{n}\right)^n$$

$$\frac{d}{dx}e^x = e^x$$

$$\frac{d}{dx}e^u = e^u\frac{du}{dx}$$

$$\frac{d}{dx}e^{g(x)} = e^{g(x)}g'(x)$$

$$\frac{d}{dx}b^x = b^x\ln b \qquad \frac{d}{dx}b^u = b^u\ln b\frac{du}{dx}$$

Exponential Growth and Decay

rate is proportional to amount

$\frac{dy}{dt} = ky$ is solved $(k)$ with $y = y_0e^{kt}$

Compound Interest

$$A = Pe^{rt}$$

$$A = P\left(1+\frac{r}{n}\right)^{nt}$$

## Limits/Derivatives of Logarithmic Functions

$$y = \ln x$$

$$\frac{d}{dx}\ln x = \frac{1}{x}$$

$$\frac{d}{dx}\ln u = \frac{1}{u}\frac{du}{dx}$$

$$\frac{d}{dx}\log_b x = \frac{1}{x\ln b}$$

## Differential Equations

If $y'' + ky = 0$, then

$y = A\cos\left(\sqrt{k}x\right) + B\sin\left(\sqrt{k}x\right)$

Hooke's Law

$s'' + \frac{k}{m}s = 0 \quad \frac{d^2s}{dt^2} + \frac{k}{m}s = 0 \quad F = ks$

$s = A\cos\sqrt{\frac{k}{m}}\ t\ +\ B\sin\sqrt{\frac{k}{m}}\ t$

## Area

If $y = f(x)$, and $f(x) > 0$, then

$A(b) = F(b) - F(a)$

is the area under $f(x)$ from $a$ to $b$

If $y = \frac{1}{x}$, and $x > 1$, then

$\ln x$ is the area under $y$ from 1 to $x$

If $y = \frac{1}{x}$, and $0 < x < 1$, then

$-\ln x$ is the area under $y$ from $x$ to 1

Trapezoid Rule

$A = \frac{b-a}{2n}\left(f(a) + 2f(x_1) + \ldots 2f(x_{n-1}) + f(b)\right)$

## Integrals and Antiderivatives Definitions

*Sum of Infinite Rectangles*

$$\int_a^b f(x)dx = \lim_{\Delta x \to 0} \sum_{i=a}^{b} f(x_i)\Delta x$$

where $\Delta x = \frac{b-a}{n}$ and $x_i = a + i\Delta x$

*Fundamental Theorem of Calculus*

$$\int_a^b f(x)dx = F(b) - F(a)$$

## Integrals and Antiderivatives

*General Rules*

$$\int cf(x)dx = c\int f(x)dx$$

$$\int \left[f(x) + g(x)\right]dx = \int f(x)dx + \int g(x)dx$$

$$\int 0dx = C$$

$$\int 1dx = x + C \qquad \int adx = ax + C$$

$$\int x^n dx = \frac{x^{n+1}}{n+1} + C, \text{ when} n \neq -1$$

$$\int ax^n dx = \frac{ax^{n+1}}{n+1} + C, \text{ when} n \neq -1$$

$$\int \frac{1}{x}dx = \ln|x| + C \qquad \int \frac{1}{x\ln b}dx = \log_b\left(|x|\right) + C$$

$$\int \sin x dx = -\cos x + C$$

$$\int \cos x dx = \sin x + C$$

$$\int \sec^2 x dx = \tan x + C$$

$$\int \csc^2 x dx = -\cot x + C$$

$$\int \sec x \tan x dx = \sec x + C$$

$$\int \csc x \cot x dx = -\csc x + C$$

$$\int e^x dx = e^x + C \qquad \int b^x \ln b dx = b^x + C$$

$$\int a^x dx = \frac{a^x}{\ln a} + C, \text{ where} a \neq 1$$

$$\int \frac{1}{x^2 + 1}dx = Tan^{-1}x + C$$

$$\int \frac{1}{\sqrt{1 - x^2}}dx = Sin^{-1}x + C$$

*Substitution Rule*

$$\int_a^b f\left(g(x)\right)g'(x)dx = \int_{g(a)}^{g(b)} f(u)du, \text{ where} u = g(x)$$

## Integration Techniques

Fundamental Theorem of Calculus

$$\int_a^b f(x)dx = F(b) - F(a)$$

Substitution

$$\int_a^b f\big(g(x)\big)g'(x)dx = \int_{g(a)}^{g(b)} f(u)du,$$

$$\text{where} u = g(x) \quad \text{and} \quad \tfrac{du}{dx} = g'(x)$$

or

$$\int F'\big(g(x)\big)g'(x)dx = F(g(x)) + C$$

$$\text{where} \tfrac{d}{dx}F(g(x)) = F'(g(x))g'(x)$$

Partial Fractions

$$\int \frac{A(x)}{B(x)}dx = \int Q(x)dx + \int \frac{R(x)}{B(x)}dx$$

$$\int \frac{1}{\text{LIN}}dx, \quad \text{use normal methods}$$

$$\int \frac{A(x)}{B(x)}dx = \int \frac{A}{\text{LIN}} + \frac{B}{\text{LIN}}dx$$

$$\int \frac{A(x)}{\big(B(x)\big)^n}dx = \int \frac{A}{B(x)} + \frac{B}{\big(B(x)\big)^2} + ..dx$$

$$\int \frac{A(x)}{B(x)}dx = \int \frac{Ax+B}{\text{QUAD}} + \frac{C}{\text{LIN}}dx$$

Integration by Parts

$$\int udv = uv - \int vdu$$

$$\int f(x)g'(x)dx$$

$$= f(x)g(x) - \int g(x)f'(x)dx$$

Volume of Rotation

$$V = \pi\int_a^b \big(f(x)\big)^2 dx$$

## Average Value of a Function

$$\text{Average Value} = \frac{\int_a^b f(x)dx}{(b-a)}$$