Week 9
Term 2
2021

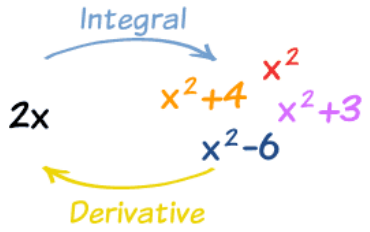
HAWKER COLLEGE
Engage | Inspire | Achieve

Learning Brief MM3: Integrals

Goals

By the end of this week, you should be able to:

- Integrate various functions by recognition, various rules and by substitution
- Integrate various functions using CAS
- Understand and use integration notation
- Use your CAS to integrate functions



$$\int [f(x) \pm g(x)]\,dx = \int f(x)\,dx \pm \int g(x)\,dx$$

$$\int kf(x)\,dx = k\int f(x)\,dx \qquad \int g(x)\,dx = f(x) + c$$

Theoretical Components

JacPlus eBook *Year 12 Maths Quest Methods*
Chapter 9 (pdf – Google Classroom)

$f(x)$	$\int f(x)\,dx$
a	$ax + c$
ax^n	$\frac{ax^{n+1}}{n+1} + c$
$(ax+b)^n$	$\frac{(ax+b)^{n+1}}{a(n+1)} + c$
$\frac{1}{x}$	$\log_e \lvert x \rvert + c$
$\frac{1}{ax+b}$	$\frac{1}{a}\log \lvert ax+b \rvert + c$
e^x	$e^x + c$
e^{kx}	$\frac{1}{k}e^{kx} + c$
$\sin(ax)$	$\frac{-1}{a}\cos(ax) + c$
$\cos(ax)$	$\frac{1}{a}\sin(ax) + c$

Read worked examples 1 to 9 on anti-differentiation.
Read worked examples 10 to 12 on integrating special functions.
View worked example 13, read examples 14 to 17 on integrating by recognition.

Practical Components

JacPlus eBook *Year 12 Maths Quest Methods*

Exercise 9A: Revision of antidifferentiation
- Q's 1(f,m,s), 2(c,f), 3, 4, 6, 11(a,e), 12

Exercise 9B: Integration of e^x, $\sin x$, and $\cos x$
- Q's 1(a,p) 2, 4, 5, 6(a,j,w), 7(c,e), 12

Investigation

Complete the Quiz on mathspace

QFO

Quiz/Forum/Other

Complete the quiz on Mathspace.