



SHENTON
COLLEGE

ATMAM Mathematics Methods
Test 2 (2019)
Calculator Free

Name:

Teacher:

Friday

Smith

Al

Time Allowed : 18 minutes

Marks

/23

Materials allowed: Formula Sheet.

*Attempt all questions. Questions 1 to 4 are in this section.
All necessary working and reasoning must be shown for full marks.
Marks may not be awarded for untidy or poorly arranged work.*

1

Determine the following indefinite integrals.

a) $\int 6 \int 3x^2 - 4x \, dx$

(2)

b) $\int \cos^2(x) \sin(x) - \sin(x) \, dx$

(3)

c) $\int 2x(2x + 1)^2 \, dx$

(2)

d) $\int (3x + 5)^4 dx$ (1)

b) $\int_0^{\pi} \sin(x) dx$ (3)

e) $\int \frac{4x - 1}{x^3} dx$ (2)

3 a) Find, in terms of x ,
 $\frac{d}{dx} \int_x^1 (u^2 - 4)^3 du$ (2)

2 Evaluate the following definite integrals.

a) $\int_1^5 \sqrt{3x + 1} dx$ (4)

b) $\frac{d}{dx} \left(x^2 \int_0^{\pi} \sin y dy \right)$ (2)

4 If $f(x) = \frac{1-x}{\sqrt{1+x}}$ evaluate $\int_1^3 f'(x) dx$ (2)