

**Churchlands Mathematics Department 2022**

Year 12 Mathematical Methods

Test 2: Non Resource Applications of Antidifferentiation, Fundamental Theorem, Exponential Function and Calculus of Trigonometric Functions.Discrete Random Variable(3.1.1-3.1.6,3.1.9,3.2.4,3.2.5,3.2.15-3.2.22,3.3.1-3.3.8)

|  |
| --- |
| INSTRUCTIONS:  No Calculator; Notes not allowed;Full working must be shown for all questions (or parts) worth more than 2 marks;Marks will be deducted for rounding and unit errors;Formula Sheet allowed |
| Name: Time: 20 minutes Total / 22   |  |  |  |  | | --- | --- | --- | --- | |  | Rounding | Units | Notation | |

1. [1ks]

Differentiate each of the following, with respect to :

2. [ 4 marks]

Find the gradient of the tangent to the graph of when . Hence give the equation of the tangent. (Use exact values)

1. [ 5 marks]

The acceleration of a particle is given by . When the initial velocity is , the particle is to the left of the origin, find its exact position after

1. [ marks]

Find the exact value of each of the following: