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**MATHEMATICS  
Methods Units 1 & 2**

**Test 3 – Functions, Transformations and Relations**

**Chapters 8 and 9**

**Semester 1 2019**

**Section One - Calculator Free**

Time allowed for this section

Working time for this section: 25 minutes

Marks available: 25 marks

## Material required/recommended for this section

##### To be provided by the supervisor

This Question/Answer booklet

Formula sheet

##### To be provided by the candidate

Standard items: pens, pencils, pencil sharpener, eraser, correction fluid, ruler, highlighters

Special items: Nil

## Important note to candidates

No other items may be used in this section of the examination. It is **your** responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor **before** reading any further.

1. (4 marks)  
   State two possible equations for a circle with radius 5 and passing through the point with coordinate (4, 4).
2. (3 marks)  
   Find the equation of the circle drawn below.



1. (8 marks)  
   Consider the function with equation
   1. Explain why this curve exists only for . [2]
   2. Explain why the y-value must always be at least 5. [1]
   3. What is the largest possible value of y? [2]
   4. On the axes provided, sketch this curve. [3]



1. (10 marks)

State the natural domain and range for each of the functions/relations below.

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| --- | --- | --- |
| Function/Relation | Natural Domain | Natural Range |
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**End of Section One**