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| Year  10 | | | Geometric Reasoning | | Calculator Test |
| Longer Questions | Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  | Write all working and answers in the spaces provided on this test paper.  Calculators are allowed for this section. | | | | |
| 1. | Find the value of the pronumeral in each of the following diagrams.  Show all necessary steps in your reasoning. | | | | |
|  | (a)  2 marks | …………………………………………  …………………………………………  …………………………………………  ………………………………………… | | | |
| (b)  3 marks | …………………………………………  …………………………………………  …………………………………………  ………………………………………… | | | |
| (c)  2 marks | …………………………………………  …………………………………………  …………………………………………  ………………………………………… | | | |

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| 2. | Complete the proofs below showing all necessary steps of reasoning. | | | |
|  | a)  3 marks | Prove that  ………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… | | |
| b)  3 marks | Prove that  ………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… | | |
| (c)  3 marks | is an isosceles triangle with *GH* = *HI.*  *HJ* is perpendicular to *GI.*  Prove that  ………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… | | |
| 3. | Complete the proofs below showing all necessary steps of reasoning. | | | |
|  | (a)  2 marks | | Prove that  ………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… | |
| (b) | | In ∆ *ABC* and ∆ *DEC,* , *AC* = 14 cm, *CD* = 6 cm and *DE* = 9 cm. | |
| (i)  2 marks | Prove that ∆ *ABC* ||| ∆ *DEC*.  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… |
| (ii)  2 marks | Calculate the length of *AB*.  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… |

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| 4. | Show all necessary reasoning in the solution of the problems. | |
|  | ABCD is a parallelogram.  The diagonal AC is drawn. | |
|  | (i)    2 marks | Prove that .  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… |
| (ii)    1 marks | Prove that the opposite angles ADC and ABC are equal.  …………………………………………………………………………………  …………………………………………………………………………………  …………………………………………………………………………………  ………………………………………………………………………………… |

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| Year  10 | | | | | | | Geometric Reasoning | | | Calculator Test |
| Longer Questions | | ANSWERS | |
|  | |  | | | | | | | | |
| 1. | | Find the value of the pronumeral in each of the following diagrams.  Show all necessary steps in your reasoning. | | | | | | | | |
|  | | (a)  2 marks | | |  | | | | | |
| (b)  3 marks | | |  | | | | | |
| (c)  2 marks | | |  | | | | | |
| 2. | | | a)  3 marks | |  | | | | | |
| b)  3 marks | |  | | | | | |
| (c)  3 marks | |  | | | | | |
| 3. | | | (a)  2 marks |  | | | | | | |
| (b) | In ∆ *ABC* and ∆ *DEC,* , *AC* = 14 cm, *CD* = 6 cm and *DE* = 9 cm. | | | | | | |
| (i)  2 marks | | | |  | | |
| (ii)  2 marks | | | |  | | |
| 4. | (i)    2 mark | | | | |  | | | | |
| (ii)  1 marks | | | | |  | | | | |