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| Year  10 | | *Non Right Triangle Trigonometry* | Calculator Allowed |
| **Skills and Knowledge Assessed:**   * Apply Pythagoras’ theorem and trigonometry to solving three - dimensional problems in right- angled triangles (ACMMG276) * Use the unit circle to define trigonometric functions, and graph them with and without the use of digital technologies (ACMMG274) * Solve simple trigonometric equations (ACMMG275) * Establish the sine, cosine and area rules for any triangle and solve related problems (ACMMG273) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 1** Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | Write a statement of the cosine rule that could be used to find the size of angle *R* in the triangle *PQR*.  ……………………………………………  …………………………………………… | | |
|  | Use the cosine rule to find the length of  correct to the nearest 10th of a km.  ……………………………………………  …………………………………………….  ……………………………………………  ……………………………………………. | | |
|  | Use the sine rule to find the size of  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | Calculate the value of *g* correct to one decimal place.  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | Find the value of  to the nearest degree.  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | *G* is 200 km due north of *H.*  *I* is on a bearing 085o from *G.*  *I* is on a bearing 075o from *H.*  Find the distance *GI*?  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | Find the area of.  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | The angle of elevation of the lighthouse (*L*) from boat *A* is 12o, and from boat *B* is 21o.  The points *A* and *B* are 1.5 km apart on a straight line toward the lighthouse.  Calculate the distance *BL*.  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | Solve  ………………………………………………  ……………………………………………….  ………………………………………………  ………………………………………………. | | |
|  | Use the grid to draw a sketch of  for | | |

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| Year  10 | | *Non Right Triangle Trigonometry* | Calculator Allowed |
|  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 2** Multiple Choice Section | | | |
| Mark all your answers on the accompanying multiple choice answer sheet, not on this test paper. You may do any working out on this test paper. Calculators are allowed for this section. | | | |
|  | Which calculation could be used to find the distance *e* in triangle *DEF*?  A.  B.  C.  D. | | |
|  | Use the sine rule to find the value of *a*.  A. 22.3  B. 25.8  C. 49.9  D. 128.4 | | |
|  | Use the cosine rule to find the value of *a*.  A. 7.2  B. 25.9  C. 31.1  D. 37.2 | | |
|  | Find the size of  A. 8o  B. 44o  C. 48o  D. 84o | | |
|  | Find the value of *x*.  A. 5.6  B. 14.5  C. 39.7  D. 125.8 | | |
|  | Find the value of  A. 24o  B. 45o  C. 56o  D. 78o | | |
|  | Find the value of *p*, correct to the nearest whole number.  A. 12 km  B. 26 km  C. 47 km  D. 51 km | | |
|  | What is the bearing of *C* from *A*?  A. 029o  B. 061o  C. 119o  D. 151o | | |
|  | Find all the values of  for which    A.  B.  C.  D. | | |
|  | Which equation describes the graph shown?  A.  B.  C.  D. | | |

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| Year  10 | *Non Right Triangle Trigonometry* | Calculator Allowed |
|  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 3** Longer Answer Section | | |
| Write all working and answers in the spaces provided on this test paper. | | |

|  | | **Marks** |
| --- | --- | --- |
|  | Three town *K, L* and *M* are located such that *KL* = 150 km and *LM* = 120 km.  From *L*, the bearing of *K* is 290o and the bearing of *M* is 240o. |  |
|  | a) What is the distance *KM*?  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **2** |
|  | b) Find the size of  and hence the bearing of *M* from *K*.  ……………………………………………………………………………………………….  ………………………………………………………………………………………………. | **3** |

*Multiple Choice Answer Sheet*

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Completely fill the response oval representing the most correct answer.

1. A B C D

2. A B C D

3. A B C D

4. A B C D

5. A B C D

6. A B C D

7. A B C D

8. A B C D

9. A B C D

10. A B C D

*Non Right Triangle Trigonometry*

ANSWERS

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| Section 1 | |
|  | or |
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| Section 2 | |
|  | A |
|  | A |
|  | B |
|  | D |
|  | C |
|  | B |
|  | D |
|  | C |
|  | A |
|  | B |

|  |  |
| --- | --- |
| Section 3 | |
|  | a) |
|  | b) |

*Multiple Choice Answer Sheet*

Name Marking Sheet

Completely fill the response oval representing the most correct answer.

1. A B C D

2. A B C D

3. A B C D

4. A B C D

5. A B C D

6. A B C D

7. A B C D

8. A B C D

9. A B C D

10. A B C D