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| Year  8 | | *Pythagoras Theorem* | Non Calculator  Section |
| **Skills and Knowledge Assessed:**   * Investigate Pythagoras’ theorem and its application to solving simple problems involving right angled triangles (ACMMG222) * Investigate the concept of irrational numbers, including π (ACMMG186) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Answer all questions in the spaces provided on this test paper by:**  ***Writing the answer in the box provided.***  **or**  ***Shading in the bubble for the correct answer from the four choices provided.***  **Show any working out on the test paper.** | | | |
|  | Which side is the hypotenuse of more than one triangle?  *AB BD*  *DF FB* | | |
|  | Find the value of | | |
|  | Write a statement of Pythagoras theorem for the triangle shown. | | |
|  | Which of the following is true about the length of *AB* in the triangle *ABC*?  It is a whole number greater than 6.  It is a whole number between 5 and 6.  It is a rational number between 5 and 6.  It is an irrational number between 5 and 6. | | |
|  | Which is a correct statement of Pythagoras Theorem for  ? | | |
|  | Find the length of the hypotenuse in the triangle shown.  cm | | |
|  | For questions 7 – 10 you may refer to the table of squares provided below.     |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | | 15 | 225 | 21 | 441 | | 16 | 256 | 22 | 484 | | 17 | 289 | 23 | 529 | | 18 | 324 | 24 | 576 | | 19 | 361 | 25 | 625 | | 20 | 400 | 26 | 676 | | | |
|  | Find the length of *ST* in triangle *STU*.  *ST* = cm | | |
|  | What is the length of *LM* in triangle *LMN*?      22 cm 23 cm  24 cm 25 cm | | |
|  | What is the value of *g* in the triangle shown ?      cm. cm.  cm. cm. | | |
|  | Which of the triangles below are right angled?  Both triangles are right angled.  Neither triangle is right angled.  Only triangle 1 is right angled.  Only triangle 2 is right angled. | | |

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|  | For questions 11– 12 you may refer to the table of squares roots provided below.     |  |  |  |  | | --- | --- | --- | --- | |  |  |  |  | | 201 | 14.18 | 211 | 14.53 | | 202 | 14.21 | 212 | 14.56 | | 203 | 14.25 | 213 | 14.59 | | 204 | 14.28 | 214 | 14.63 | | 205 | 14.32 | 215 | 14.66 | | 206 | 14.35 | 216 | 14.70 | | 207 | 14.39 | 217 | 14.73 | | 208 | 14.42 | 218 | 14.76 | | 209 | 14.46 | 219 | 14.80 | | 210 | 14.49 | 220 | 14.83 | |
|  | Find the length of *UV* in triangle *UVW* (correct to 2 decimal places).  *UV* = m |
|  | What is the length of *p* in triangle shown? (Answer correct to 2 decimal places)      14.46 km 14.59 km  14.70 km 14.80 km |

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| Year  8 | | *Pythagoras Theorem* | Calculator Allowed  Short Answer  Section |
|  | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Answer all questions in the spaces provided on this test paper by:**  ***Writing the answer in the box provided.***  **or**  ***Shading in the bubble for the correct answer from the four choices provided.***  **Show any working out on the test paper. Calculators are allowed.** | | | |
|  | Name the hypotenuse of the triangle *PQR.* | | |
|  | What is the value of *x* in the diagram of a right triangle?  11 cm 18 cm  20 cm 28 cm | | |
|  | Find the length of the hypotenuse *AB* in the triangle *ABC*.    *AB =* cm. | | |
|  | What is the length of *AB* in the triangle?  (Answer correct to one decimal place.)  24.7 m 34.5 m  36.9 m 47.0 m | | |
|  | Calculate the length of *MN* in the triangle shown. (Answer correct to one decimal place.)  *MN* = m | | |
|  | Find the length of the hypotenuse *XY* in the triangle *XYZ*.    *XY =* km. | | |
|  | What is the value of *k* in the diagram?  (Answer correct to one decimal place.)  3.9 m 6.7 m  15.7 m 26.0 m | | |
|  | Calculate the length of *MN* in the triangle shown. (Answer correct to one decimal place.)  *EF* = m | | |
|  | What is the length of *FG* in the triangle *EFG*?  *FG* = cm. *FG* = cm  *FG* = cm *FG* = cm | | |
|  | What is the value of *v* in the diagram?  Leave your answer as a surd.  *v =* | | |
|  | Which of the following is a Pythagorean triad?  (A Pythagorean Triad is a set of three numbers which obey Pythagoras Theorem.)  (33, 56, 65) (33, 58, 65) (34, 56, 65) (33, 57, 66) | | |
|  | A Pythagorean triad has 48 and 90 as its two smaller numbers. What is the largest number? | | |
|  | Which triangle is right angled?  Both triangles.  only.    Neither Triangle.  only. | | |
|  | Which of these triangles are right triangles? (There are at least two which are.)  Write the letters of those which are right in the boxes. You do not need to fill all boxes. | | |
|  | What is the length of the ladder leaning against the wall?  m | | |
|  | The plane climbs at a constant angle until it is directly above a point which is 6.0 km from the place it left the ground.  At this point the plane has flown 6.5 km in a straight line, to the nearest 100 m.  Calculate the altitude of the plane above the ground.  Altitude is km. | | |
|  | Find the perimeter of the triangle *JKL.*  Perimeter is m. | | |
|  | Find the area of  Area = m2. | | |

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| Year  8 | *Pythagoras Theorem* |

ANSWERS

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| Non Calculator Section |

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|  | *FB* |
|  | 5 |
|  |  |
|  | It is an irrational number between 5 and 6. |
|  |  |
|  | 10 cm |
|  | 25 cm |
|  | 24 cm |
|  | cm |
|  | Both triangles are right angled. |
|  | 14.42 m |
|  | 14.70 km |

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| Calculator Allowed Section |

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|  | *PQ* |
|  | 20 cm |
|  | 41 cm |
|  | 34.5 m |
|  | 39.8 m |
|  | 60 km |
|  | 26.0 m |
|  | 17.3 m |
|  | *FG* = cm |
|  |  |
|  | (33, 56, 65) |
|  | 102 |
|  | Both triangles. |
|  | A and D |
|  | 5.3 m |
|  | 2.5 km |
|  | JK = 720 m;  Perimeter = 2 160 m |
|  | SV = 16 VU = 35  SU =51  Area = 306 m2 |