|  |  |  |  |
| --- | --- | --- | --- |
| Year  9 | | *Pythagoras Theorem* | Calculator Allowed |
| **Skills and Knowledge Assessed:**   * Investigate Pythagoras’ Theorem and its application to solving simple problems involving right angled triangles (ACMMG222) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Section 1Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | Find the length of *FG*.  ………………………………………  ………………………………………  ………………………………………  ……………………………………… | | |
|  | Find the value of *w*.  ………………………………………  ………………………………………  ………………………………………  ……………………………………… | | |
|  | What is the length of *RS* ?  ………………………………………  ………………………………………  ………………………………………  ……………………………………… | | |
|  | Write a statement of Pythagoras Theorem for triangle HIJ, shown.    ……………………………………… | | |
|  | Find the distance EF to the nearest metre.    ………………………………………  ………………………………………  ………………………………………  ……………………………………… | | |
|  | Is there a whole number which will go with 12 and 35 to form a Pythagorean Triad, and if so what is it?  …………………………………………………………………………………………….  …………………………………………………………………………………………….  ……………………………………………………………………………………………. | | |
|  | Is a triangle with the dimensions below, right angled? Explain why?    …………………………………………………………………………………………….  …………………………………………………………………………………………….  ……………………………………………………………………………………………. | | |
|  | Find the length of *KL* (leave your answer as a surd).  ………………………………………  ………………………………………  ………………………………………  ……………………………………… | | |
|  | The ladder shown, leans against the top of the wall.  What is the height of the wall, correct to the nearest 10th of a metre?  ………………………………………  ………………………………………  ………………………………………  ……………………………………… | | |
|  | A plane is shown coming in to land. It is 2.1 km horizontally from the point where it will touch down and 2.5 km in a straight line from the point.  What is it’s altitude to the nearest metre?  ………………………………………………………………………………  ………………………………………………………………………………  ……………………………………………………………………………… | | |
|  | Tarquin is building a shed.  He needs a beam for the roof, to go from A to B on the diagram.  What is the length of the beam?  …………………………………………….  ……………………………………………  ……………………………………………  …………………………………………… | | |
|  | Measurements were taken to help calculate the width of the river.  The distance across the bridge AC = 120 m.  The distance along the bank BC =86 m.  Calculate the width of the river (AB), to the nearest metre.  …………………………………………….……………………………………………  …………………………………………………………………………………………  …………………………………………………………………………………………  ………………………………………………………………………………………… | | |
|  | What is the area of the triangle *EFG*?  …………………………………………….  ……………………………………………  ……………………………………………  …………………………………………… | | |
|  | Calculate the distance SU.    …………………………………………….  ……………………………………………  ……………………………………………  …………………………………………… | | |
|  | Find the area of triangle XYZ, to the nearest 10th of a square centimetre.  …………………………………………….  ……………………………………………  ……………………………………………  ………………………………………….. | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Year  9 | | *Pythagoras Theorem* | Calculator Allowed |
| Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Section 2Multiple 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 side is the hypotenuse of the right triangle *ABC*?    A. AB  B. AC  C. BC  D. BD | | |
|  | Which is a correct statement of Pythagoras Theorem for the triangle shown below.    A.  B.  C.  D. | | |
|  | Find the length of *XY*  A. 25  B. 27  C. 29  D. 31 | | |
|  | The length of *AB* in the triangle below is:  A. 2.5 cm  B. 3.5 cm  C. 10.4 cm  D. 13.4 cm | | |
|  | Find the value of *d* in the triangle below.  A. 2.5 cm  B. 3.5 cm  C. 13.4 cm  D. 21.6 cm | | |
|  | Find the value of *k*.  A. *k* = 28  B. *k* = 30  C. *k* = 31  D. *k* = 33 | | |
|  | Which is the best estimate for the length of *AB* in the triangle?  A. It lies between 32 m and 33 m.  B. It lies between 38 m and 39 m.  C. It lies between 45 m and 46 m.  D. It lies between 49 m and 50 m. | | |
|  | Which of the following is a Pythagorean triad?    A. {15, 39, 45} B. {15, 36, 38} C. {16, 28, 34} D. {24, 70, 74} | | |
|  | Which of the triangles below are right angled?    A. Both triangles are right angled.  B. Neither triangle is right angled.  C. Only triangle A is right angled.  D. Only triangle B is right angled. | | |
|  | A rectangular pet gate measures 32 cm by 45 cm and has a diagonal brace through the centre. What length of metal is needed to make the brace for the gate?    A. 31.6 cm.  B. 55.2 cm.  C. 62.3 cm.  D. 77.0 cm. | | |
|  | What is the value of *p* in the triangle shown?  A.  B.  C.  D. | | |
|  | What is the perimeter of the triangle STU?  A. 65 m  B. 89 m  C. 121 m  D. 154 m | | |
|  | What is the length of CD?  A. 12.5 m  B. 18.9 m  C. 21.4 m  D. 45.6 m | | |
|  | What is the height of the wall, marked *h*?  A. 6.3 m  B. 8.8 m  C. 9.2 m  D. 12.9 m | | |
|  | What is the perimeter of this shape?  A. 86 m  B. 111 m  C. 123 m  D. 148 m | | |

# Pythagoras Theorem

# 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

11. A B C D

12. A B C D

13. A B C D

14. A B C D

15. A B C D

*Pythagoras Theorem*

# ANSWERS

|  |  |
| --- | --- |
| Section 1 ( 1 mark each) | |
|  | Working and Answers |
|  |  |
|  |  |
|  |  |
|  | or |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

|  |  |  |
| --- | --- | --- |
| Section 2 (1 mark each) | | |
|  | Working | Answers |
|  | AC is hypotenuse (longest side – opposite right angle) | B |
|  |  | C |
|  |  | C |
|  |  | C |
|  |  | D |
|  |  | B |
|  |  | B |
|  |  | D |
|  |  | C |
|  |  | B |
|  |  | D |
|  |  | D |
|  |  | C |
|  |  | B |
|  |  | D |

# Pythagoras Theorem

# 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

11. A B C D

12. A B C D

13. A B C D

14. A B C D

15. A B C D