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| *School Name*  *Mathematics Test 2017* | | | |
| 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) * Investigate the concept of irrational numbers, including π (ACMMG186) | | | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Section 1** Short Answer Section | | | |
| Write all working and answers in the spaces provided on this test paper. | | | |
|  | Name the hypotenuse of the right triangle *EFG*?    ……………………………………………… | | |
|  | Write a statement of Pythagoras Theorem for the triangle shown below.  ………………………………………………… | | |
|  | Find the length of *PQ.*  …………………………………………....  …………………………………………....  ……………………………………………  ……………………………………………. | | |
|  | Find the value of *c* in the triangle below.    ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | Calculate the length of *EF*, correct to one decimal place.  ……………………………………………  …………………………………………....  ……………………………………………  ……………………………………………. | | |
|  | Which of the following sets could be described as a Pythagorean triad? (Show why.)  Set A {21, 72, 75} Set B {42, 60, 75}.  ……………………………………………………………………………………………....  ………………………………………………………………………………………………. | | |
|  | A rectangle is 64 cm long and has a diagonal which is 80 cm long.  Calculate the width of the rectangle.  ……………………………………………………………………………………………....  ………………………………………………………………………………………………. | | |
|  | Determine if the triangle below is right angled?  Use calculations to support your decision.    ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | Calculate the exact value of *x*.    ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | What is the length of *ST*, correct to 1 decimal place?  ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | What is the perimeter of the triangle *XYZ*?  (Answer correct to the nearest 10th of a square metre.)  ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | What is the area of the triangle *PQR*?  (Answer correct to 1 decimal place.)  ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | Determine if the quadrilateral shown is a rectangle.  ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | A right isosceles triangle is shown.  What is the value of s, correct to 1 decimal place?  ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |
|  | Find the length of *HG*.  ………………………………………………  ……………………………………………....  ………………………………………………  ………………………………………………. | | |

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| Year 9 | | *Pythagoras Theorem* | 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 is a correct statement of Pythagoras Theorem for the triangle shown below.    A.  B.  C.  D. | | |
|  | Find the value of *x*.    A. *x* = 25  B. *x* = 31  C. *x* = 34  D. *x* = 46 | | |
|  | Find the value of *y*.    A. *y* = 9  B. *y* = 21  C. *y* = 25  D. *y* = 35 | | |
|  | What is the length of *ON* ?  A. 48 m  B. 53 m  C. 61 m  D. 73 m | | |
|  | Find the distance *XZ* to the nearest millimetre.    A. 19.7 cm  B. 20.3 cm  C. 23.5 cm  D. 27.0 cm | | |
|  | Find the length of *KI* (leave your answer as a surd).    A.  B.  C.  D. | | |
|  | Determine if either of the triangles shown are right angled.    A. Both triangles are right angled.  B. Neither triangle is right angled.  C. Only triangle P is right angled.  D. Only triangle Q is right angled. | | |
|  | 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. 11.8 m  B. 12.1 m  C. 12.4 m  D. 13.3 m | | |
|  | A plane (*Z)* is 3.6 km directly above a point *Y*.  It is viewed from point *X*, which is 1.2 km horizontally from Y.  What is the distance *XZ* (to the nearest 10 m)?  A. 3.69 km  B. 3.79 km  C. 3.95 km  D. 4.65 km | | |
|  | Are either or both of the following two sets of numbers, Pythagorean triads?  **Set A (48, 55, 73)**  **Set B (11, 60, 61)**  A. Both sets are Pythagorean triads.  B. Neither set is a Pythagorean triads.  C. Only Set A is a Pythagorean triad.  D. Only Set B is a Pythagorean triad. | | |
|  | Find the area of  A. 510 cm2  B. 680 cm2  C. 720 cm2  D. 960 cm2 | | |
|  | What is the perimeter of the triangle *PQR*?  A. 144 cm  B. 152 cm  C. 158 cm  D. 168 cm | | |
|  | *BC* = 34 cm, *AB* = 20 cm and *BD* = 16 cm.  Calculate the distance *AC*.    A. 27 cm  B. 30 cm  C. 42 cm  D. 54 cm | | |
|  | Also *EH* = 45 cm, *FH* = 60 cm and *FG* = 61 cm.  Find the perimeter of  .  A. 166 cm  B. 192 cm  C. 198 cm  D. 206 cm | | |
|  | From 10.6 metres away from the base of a building, Karen sites the direct distance to the top of the building to be 12.4 m.  If her eye level is 1.6 m above ground, calculate the height of the building, to the nearest 10th of a metre.  A. 3.4 m  B. 6.4 m  C. 7.4 m  D. 8.0 m | | |

*School Name*

*Mathematics 2017*

*Multiple Choice Answer Sheet*

*Pythagoras Theorem*

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

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| *School Name*  *Mathematics Test 2017* | | |
| Year 9 | *Pythagoras Theorem* | Non Calculator Section |

ANSWERS

| Question | Working and Answer |
| --- | --- |
|  | *EG* is the longest side and opposite to the right angle, so ***EG* is the hypotenuse.** |
|  | *k* is the hypotenuse so |
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| *School Name*  *Mathematics Test 2017* | | |
| Year 9 | *Pythagoras Theorem* | Calculator Allowed  Multiple Choice  Section |

ANSWERS

|  |  |  |
| --- | --- | --- |
| Question | Working | M C Answer |
|  |  | **D** |
|  |  | **C** |
|  |  | **B** |
|  |  | **B** |
|  |  | **A** |
|  |  | **C** |
|  |  | **C** |
|  |  | **A** |
|  |  | **B** |
|  |  | **A** |
|  |  | **D** |
|  |  | **D** |
|  |  | **C** |
|  |  | **B** |
|  |  | **D** |

*School Name*

*Mathematics 2017*

*Multiple Choice Answer Sheet*

*Pythagoras Theorem*

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