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| *School Name*  *Mathematics Test 2017* | | | |
| Year 8 | | *Pythagoras Theorem* | Calculator Allowed  Test |
| **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.Calculators areallowed.  Diagrams are not to scale. | | | |
|  | Which side is the hypotenuse of the triangle shown below? | | |
|  | Write a statement of Pythagoras Theorem for the triangle shown. | | |
|  | Which calculation could be used to find the value of *d*? | | |
|  | Find the value of *q*. | | |
|  | Find the length of *BC*. | | |
|  | What is the length of *XY*? | | |
|  | Write a statement of Pythagoras Theorem for the right triangle *RST*. | | |
|  | Find the length of *ST* (correct to 1 decimal place) in the triangle below.    4.9 cm  24.0 cm  35.0 cm  48.0 cm | | |
|  | Find the distance *CD* to the nearest tenth of a metre. | | |
|  | A crate which measures 1.6 metres by 1.2 metres, has a supporting brace which goes from *P* to *Q* as shown on the diagram.  What is the distance *PQ*? | | |
|  | Which of these is a rational number? | | |
|  | A plane *P* passes directly above a point *M.*  A radar is located at *N,* which is 3.4 km from *M.*  The radar records the direct distance to the plane to be 6.5 km  What is the altitude of the plane, *PM*? | | |
|  | A power pole *AK* is to be supported by a 20.5 m long wire, which is attached to the pole at *J*.  The wire is attached to the ground at C, which is 13.8 m from *A*.  How far above the ground, is the point *J*, correct to the nearest 10th of a metre? | | |
|  | Which of the triangles below are right angled?    Both triangles are right angled.  Neither triangle is right angled.  Only triangle *A* is right angled.  Only triangle *B* is right angled. | | |
|  | Which of the following are Pythagorean triads?  More than one could be a Pythagorean triad, so mark all that are.  {48, 68, 88} {48, 90, 102} {48, 64, 80} {48, 84, 100} | | |
|  | Find the length of *XY.*  1.8 m  3.6 m  5.2 m  7.2 m | | |
|  | Is a triangle with the dimensions below, right angled?  Explain why.    ………………………………………………  ……………………………………………….  .………………………………………………  ………………………………………………. | | |
|  | Find the value of *k*. | | |
|  | A fire engine has a ladder which is 48.5 m long and is mounted 1.5 m above ground level.  For safety reasons the engine must park at least 10.4 m back from a burning building when using its ladder.  How far above the ground could the ladder reach up the side of a building? | | |
|  | What is the value of *y* in the triangle shown? | | |
|  | What is the perimeter of the triangle *PQR*? | | |
|  | A footrace course has four legs as shown in the diagram.  Three of the legs run due East, North and South respectively.  Calculate the total length of the course. | | |
|  | What is the area of triangle *HIJ*? | | |
|  | Which of the triangles below are right angled? | | |
|  | What is the length of *NP*? | | |
|  | Calculate the distance *EF.* (Answer to 1 decimal place.). | | |
|  | Find the perimeter of triangle *ABC*. | | |

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| Year 8 | *Pythagoras Theorem* |  |

ANSWERS

| Question | Working and Answer |
| --- | --- |
|  | Hypotenuse is **YZ**  **4th Answer** |
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|  | **4th Answer** |
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|  | **3rd Answer** |
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|  | Using a calculator,  and the others give non recurring or terminating decimals, so is rational.  **2nd Answer** |
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|  | Only A is right angled.  **3rd Answer** |
|  | 2nd and 3rd Answers |
|  | **2nd Answer** |
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|  | **2nd Answer** |
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|  | **1st Answer** |
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