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| Year 8 | | *Pythagoras Theorem* | Calculator Allowed  Short Answer  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 are **not** allowed.  **Diagrams are not to scale unless otherwise stated.** | | | |
|  | Name the hypotenuse of the right triangle PQR. | | |
|  | Which is a correct statement of Pythagoras Theorem for the triangle shown below. | | |
|  | Which calculation could be used to find the length of *AC*? | | |
|  | Find the value of *x*.  *x* = | | |
|  | Find the value of *m*. | | |
|  | What is the length of *UW* ? | | |
|  | Write a statement of Pythagoras Theorem for triangle *XYZ*, shown. | | |
|  | The length of *DF* (correct to 1 decimal place) in the triangle below is:    5.0 cm  12.5 cm  14.7 cm  30.6 cm | | |
|  | Find the distance *BD* to the nearest cm. | | |
|  | Which of these is not a rational number? | | |
|  | From an intersection *A*, Bella walks 48 m due north and Carina walks 50 m due east.  Calculate the distance *BC* between the two girls, correct to the nearest 10th metre. | | |
|  | A model plane *P* is attached at *A* to a 50 m long string and is directly above point *C*.  *A* is 14 m horizontally from *C*.  What is the altitude of the plane, *PC* ? | | |
|  | A fence needs a length of timber to act as a brace, to go from A to B on the diagram.  What is the length of the brace (correct to one decimal place)? | | |
|  | Which of the triangles below are right angled?    Both triangles are right angled.  Neither triangle is right angled.  Only triangle *X* is right angled.  Only triangle *Y* is right angled. | | |
|  | Which of the following are Pythagorean triads?  More than one could be a Pythagorean triad, so mark all that are.  {60, 63, 87} {60, 80, 100} {60, 91, 109} {60, 84, 105} | | |
|  | Find the length of *BC.*  1.1 m  4.1 m  7.8 m  16.8 m | | |
|  | Find the value of *m*.    *m* = 32.7  *m* = 46.1  *m* = 53.4  *m* = 63.0 | | |
|  | Is a triangle with the dimensions below, right angled?  Explain why.  …………………………………………………………………………………………….  ……………………………………………………………………………………………. | | |
|  | What is the value of *p* in the triangle shown? | | |
|  | The 2.4 m tall fence post is shown, which is supported by two wires which are attached to the top of the post and to the ground 1.5 m from the base of the post.  What is the total length of the two wires, not including the amount needed to secure the wire?  (Answer correct to the nearest 10th of a metre) | | |
|  | What is the perimeter of the triangle *DEF*?  85 m  119 m  204 m  289 m | | |
|  | A course in a running race has three legs, the first is from A to B, the second from B to C and the third from C to D as shown on the diagram  Marcus starts from A and follows the race, filming the runners, but when he reaches E, he takes a shortcut to F, where he follows the race to the end.  How many metres does he save by taking the shortcut?  140 m.  232 m.  520 m.  848 m. | | |
|  | What is the area of the triangle? | | |
|  | Which of the triangles below are right angled?    Only  Only  Both  Both | | |
|  | What is the length of *EH,* correct to 1 decimal place? | | |
|  | Calculate the distance *OP*.  21 m  32 m  48 m  69 m | | |
|  | Find the area of triangle *ABC*, to the nearest 10th of a square centimetre. | | |

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| Year 8 | | *Pythagoras Theorem* | Calculator  Allowed Test |
| ANSWERS | | | |
| No. | WORKING | | ANSWER |
|  | Hypotenuse is QR (or RQ)( or *p*) | | QR |
|  |  | | 1st answer |
|  |  | | 4th answer |
|  |  | | 20 |
|  |  | | 20 |
|  |  | | 26 m |
|  |  | |  |
|  |  | | 14.7 cm |
|  |  | | 69 cm |
|  | Using a calculator, 641 is not a perfect square, so  is not rational. | | 3rd answer |
|  |  | | 69.3 |
|  |  | | 48 m |
|  |  | | 3.7 m |
|  | Both are right angled. | | 1st answer |
|  |  | | 1st, 2nd and 3rd answers |
|  |  | | 2nd answer |
|  |  | | 1st answer |
|  |  | | Explanation and some working needed to be correct |
|  |  | | 4th answer |
|  |  | | 5.7 m |
|  |  | | 3rd answer |
|  |  | | 2nd answer |
|  |  | | 840 cm2 |
|  |  | | 3rd answer |
|  |  | | 20.8 |
|  |  | | 4th answer |
|  |  | | 490 cm2 |