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| --- | --- | --- | --- |
| Name: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | Date: *\_\_\_\_\_\_\_\_\_\_\_* |
|  | **Year 12 Essentials Mathematics**  **Test 4, 2017**  **Topic –Pythagoras’ Theorem and Trigonometry** | | 50  = % |
| **Total Time:** | ***60*** *minutes* |  | |
| **Total Reading:** | *5**minutes* |
| **Total Working:** | *55**minutes* |
| **Weighting:** | *\_\_\_\_\_\_% of the year.* |
| **Equipment:** | *½ page notes (A4 one side), Scientific Calculator* | | |
|  | | | |

|  |  |
| --- | --- |
| **1.** | **[2 marks: 1, 1]** |
|  | Label the sides Hypotenuse, Opposite and Adjacent on the following right angled triangles: | |
|  |  |  |

|  |  |
| --- | --- |
| **2.** | **[2 marks: 1, 1]** |
|  | Label the angle  in the correct place on the following right angled triangles: | |
| **a)** |  |  |

|  |  |  |
| --- | --- | --- |
| **3.** | **[9 marks, 3, 3, 3 ]** | |
|  | Determine the value of the pronumeral in each of the following | |
|  | |  |
|  | |  |
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| --- | --- |
| **4.** | **[4 marks ]** |
|  | A boy notices a bird sitting at the very top of a 10m tall tree. If he is standing 8m from the base of the tree, what is the distance between his eye and the top of the tree? |
|  |  |

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| --- | --- |
| **5.** | **[4 marks ]** |
|  | A 25 m flagpole casts a 42 m shadow. What is the angle the sun makes with the flagpole |
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| --- | --- |
| **6.** | **[9 marks, 3, 3, 3 ]** |
|  | Determine the value of the pronumeral in each of the following |
|  |  |
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| --- | --- |
| **7.** | **[4 marks ]** |
|  | From the top of a 25 m lighthouse, on a 314 m tall cliff, the angle of depression to a sailing boat out in the ocean is 40°. How far is the sailing boat from the base of the cliff?  (Sketch a diagram of the scenario). |
|  |  |

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| --- | --- |
| **8.** | **[6 marks ]** |
|  | From an observer at O who is 200m from a building, the angles of elevation to the bottom and top of a flagpole are 36º and 38 º respectively. Find the height of the flagpole. |
|  | \\E4190S01SV001\temp$\staff\SKM_C454e17060613370.jpg |

|  |  |
| --- | --- |
| **9.** | **[4 marks ]** |
|  | The school council needs to have a ramp build over the steps of each of the building exits, to accommodate a student in a wheelchair. If the junior school building is 35cm off the ground and has steps that reach out 50cm, calculate the length of the ramp  (Sketch a diagram of the scenario). |
|  |  |

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| --- | --- |
| **10.** | **[6 marks ]** |
|  | Ashley hikes 17km on a bearing of 134º.  a. Draw a diagram of the situation  b. How far east is Ashley from his starting point?  c. How far south is Ashley from his starting point? |
|  |  |

**~ END OF TEST ~**