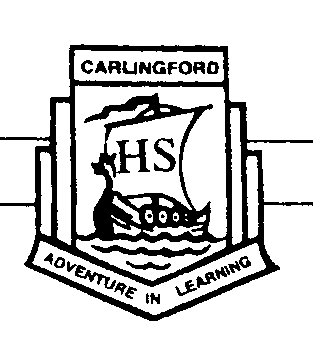
**Carlingford High School**



**Mathematics**

**Year 9, 5.1 Term 4 Test**

**2019**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Ms Bennett**

*Time allowed: The whole period*

* Show all necessary working.
* Answer all questions in the spaces provided.
* Marks may be deducted for careless or untidy work.
* Complete the examination in blue or black pen.
* Calculators may be used
* Study notes may be used

|  |  |  |  |
| --- | --- | --- | --- |
| **Topic** | **Trigonometry** | **Investigating Data** | **Total** |
| **Mark** | /33 | /37 | /70 |

**Part 1: Trigonometry**

|  |  |  |
| --- | --- | --- |
| 1. | In the following triangle, label the Opposite, Adjacent and Hypotenuse with O, A, and H. | **[3]** |
| 2. | Fill in the blanks:  **SOHCAHTOA means:** | **[4]** |
| 3. | For the following triangle, write down the value of the following ratios:    a)  b)  c) | **[3]** |
| 4. | Circle the **correct** trigonometric ratio for the triangle below: | **[1]** |
| 5. | Using your calculator, find the following unknown values, rounding to 1d.p.  a) =  b) =  c) ) = | **[3]** |
| 6. | Using your calculator, find the following unknown angles, rounding to the nearest degree.  a)  b)  c) | **[3]** |
|  | **Write down all steps of working out for the following questions:** |  |
| 7. | For the following triangles, calculate the missing sides, to 1d.p.  **SOHCAHTOA**   |  |  | | --- | --- | | **Question** | **Working and answer** | | a) |  | | b) |  | | c) |  | | **[2]**  **[2]**  **[2]** |
| 8. | For the following triangles, calculate the missing angles, to the nearest degree:  **SOHCAHTOA**   |  |  | | --- | --- | | **Question** | **Working and answer** | | a) |  | | b) |  | | c) |  | | **[2]**  **[2]**  **[2]** |
| 9. | Read the following information carefully:  A campsite is located some distance away from a lookout, which is 50m above the ground. From the campsite, the angle of elevation to the top of the lookout is 120. Find the distance ( from the camp to the base of the lookout.    120  a) Place the 120 and the in the correct location on the diagram.  b) Calculate the value of . (The distance from the camp to the base of the lookout). | **[2]**  **[2]** |

**Part 2: Investigating data**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | Classify each of the following data as either:  **Categorical Numerical Discrete Numerical Continuous**   |  |  | | --- | --- | |  | **Classification (circle the correct one)** | | Eye colour | Categorical/ Numerical Discrete/ Numerical Continuous | | How many books are in each school bags | Categorical/ Numerical Discrete/ Numerical Continuous | | How long it takes you to travel to school | Categorical/ Numerical Discrete/ Numerical Continuous | | Attendance at the zoo each day | Categorical/ Numerical Discrete/ Numerical Continuous | | Incomes of parents | Categorical/ Numerical Discrete/ Numerical Continuous | | Type of transport used to go to work each day | Categorical/ Numerical Discrete/ Numerical Continuous | | **[6]** |
| 2. | For the following data collection activities, identify whether the data should be collected via **a census or a sample.**   |  |  | | --- | --- | | **Data collection activity** | **How should it be collected: (Circle)** | | Voting preferences in Australia | Census/ Sample | | Favourite sporting activity in your class | Census/ Sample | | Favourite car colour sold in NSW | Census/ Sample | | **[3]** |
| 3. | Answer the questions about the following **Frequency Histogram and Polygon** where students were surveyed on how many hours of television they watch each week.    a) How many people watched 12.5 hours of television?  b) What was the modal number of hours of television watched?  c) How many people watched 22.5 hours of television or more? | **[3]** |
| 4. | Match the following diagrams up with the correct description-   |  |  | | --- | --- | | A | **B** | | C | D | | **Positive Skew A/ B/ C/ D** | **Negative Skew A/ B/ C/ D** | | **Symmetrical A/ B/ C/ D** | **Bimodal A/ B/ C/ D** | | Circle the correct graph | | | **[4]** |
| 5. | **TEST CONTINUES ON NEXT PAGE**  The following data shows how many extra-curricular activities students engage in, in one class.  0, 1, 4, 3, 2, 7, 2, 1, 2, 2, 1, 0, 3, 2, 2, 3, 4, 1, 1, 2, 1, 4, 2, 0, 2  a) Complete the frequency table for this data:   |  |  |  |  | | --- | --- | --- | --- | | **Number of activities** | **Tally** | **Frequency** | **Frequency x score** | | 0 |  |  |  | | 1 |  |  |  | | 2 |  |  |  | | 3 |  |  |  | | 4 |  |  |  | | 5 |  |  |  | | 6 |  |  |  | | 7 |  |  |  | | **Total** |  | = | = |   From this frequency table calculate:  b) The mode  c) The mean  d) The range  e) Turn this frequency table into a frequency histogram **and** polygon. You will need to complete the values on the vertical and horizontal axis.    f) Describe the shape of the data. (Is it positive skew, negative skew, symmetrical or bimodal?)  g) Are there any outliers? If so, what is it? | **[4]**  **[3]**  **[4]**  **[2]** |
| 6. | The following shows a stem-and-leaf diagram:    a) What number does the circled value represent?  b) What is the range?  c) What is the median?  d) Are there any clusters? If so, what are they? | **[4]** |
| 7. | A sample of students surveyed for the Australian Bureau of Statistics were asked: ‘What is the colour of your eyes?’ The results were as followed:    a) Construct a dot plot for the data    b) Circle the correct answer:  This data is: Categorical/ Numerical Discrete/ Numerical Continuous | **[4]** |