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| CARLINGFORD HIGH SCHOOLDEPARTMENT OF MATHEMATICSYear 10 5.1 MathematicsTerm 2 Test **2017**  msotw9_temp0  **Name : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Time allowed : 55 minutes**  **Class: 10M5.1 Teacher: Mr GonG**  **Instructions:**   * All necessary working should be shown in the spaces provided. * Marks will not be awarded for careless or badly arranged work. * Board approved calculators may be used. * Complete the examination in blue or black pen.  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **Linear Relationships** | **Area & Surface Area** | **Single & Bivariate Data Analysis** | **Simple & Compound Interest** | **Total** | | **Mark** | /**23** | /**31** | /**15** | /**10** | /**79** | |
| |  |  |  |  | | --- | --- | --- | --- | | **Linear Relationships (23 marks)** | | | | | **1.** | Find the value of *y* when *x* = – 1  if *y* = 3*x* + 8.  **A**  9 **B** 5    **C** 11 **D 7** | **6.** | Find the **midpoint** joining the points  (-2, 3) and (4, -9). **[2]** | | **2.** | In which **quadrant** does the point (3, - 4) lie?    **A**  First quadrant **B** Second quadrant    **C** Third quadrant **D** Fourth quadrant | | **3.** | Which of these points **lie** on the line  *y* = 3*x* – 8 ?  **A**  (-1, 11) **B** (2, 2)  **C**  (-1, -11) **D** (3,-1) | **7.** | Find the **gradient** of the line joining the points (4, -3) and (7, **-**6). **[2]** | | **4.** | Complete the table of values for  *y* = *x* – 3.   |  |  |  |  | | --- | --- | --- | --- | | ***x*** | 6 | 4 | 2 | | ***y*** |  |  |  | | | **5.** | Find the **exact** **length** of the line joining the points (1, 1) and (3, 5). **[2]**    . | **8.** | **Graph** each line on the same number plane.  MAT09NATT10011_UN14**a).** *x* = -3 **b).** *y* = 4 **[2]** |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **9.** | | **a).** **Graph** *y* = 4 – 2*x* on the number plane below.    MAT09NATT10011_UN14  **b).** Write down the coordinates of *x*-intercept.  **c).** Write down the coordinates of *y*-intercept. | | | | **[2]**  **[1]**  **[1]** | | **10.** | | Given the graph below.  MAT09NATT10011_UN14  **a).** What is the **gradient** of the line drawn ?  **b).** What is the ***y*-intercept** of the line ?  **c).** Write down the **equation** of the line in the form *y* = *mx* + *b*. | | | | **[2]**  **[1]**  **[2]** | | **Area & Surface Area (31 marks)** | | | | | | | | | **1.** | | What is the **perimeter** of a rectangle with length 8.9 cm and width 5.6 cm ?  **A**  14.5 cm **B** 19.1 cm **C** 23.4 cm **D** 29 cm | | | | | | | **2.** | | What is the **perimeter** of a square with side length 11.7 m ?  **A**  23.4 m **B** 46.8 m **C** 35.1 m **D** 47.2m | | | | | | | **3.** | | Find the **area** of a rectangle with length 12 cm and width 4.5 cm.  **A**  33 cm2 **B** 108 cm2 **C** 54 cm2 **D** 27 cm2 | | | | | | | **4.** | | Find the **area** of a triangle with base length 14.6 m and perpendicular height 8.4 m.  **A**  122.64 m2 **B** 61.32 m2 **C** 245.28 m2 **D** 46 m2 | | | | | | | **5.** | | Find the **area** of a circle with radius 6.8 m correct to 1 decimal place.  **A**  42.7 m2 **B** 21.4 m2 **C** 72.7 m2 **D** 145.3 m2 | | | | | | | **6.** | | Name each part of a circle shown.  **a).** | | | [**Hint: quadrant arc sector**] **[2]**  **b).** | | | | **7.** | | Find, correct to 2 decimal places, the **circumference** of each circle. (**Hint: *C =* 2*πr* or *πd***) **[4]** | | | | | | | **a).** | | | **b).** | | | | **8.** | | Find, correct to 2 decimal places, the **perimeter** of this shape. **[2]** | | | | | | | **9.** | | Find, correct to 1 decimal place, the **area** of each shape. (**Hint: *A = πr2***) **[4]** | | | | | | | **a).** | | | **b).** | | | | **10.** | | Find the **area** of each quadrilateral. [**Hint:** ***A = h /* 2(*a + b*)** , ***A* = *x × y* / 2]**  **[4]** | | | | | | | **a).** | | | **b).** | | | | **11.** | | What is the **area** of a rhombus (**Hint:** ***A* = *x × y* / 2**) with diagonals 22.4 and 16.3 cm ? **[2]** | | | | | | | **12.** | | Find the **surface area** of each prism. [**Hint:** ***SA =* 6*s2, SA =* 2(*lw + lh + wh*)**] **[6]** | | | | | | | **a).** | | **b).** | | **c).** | | | **13.** | | Find, correct to 1 dec pl, the **surface area** of this closed cylinder. (**Hint: *SA =* 2*πr2 +* 2*πrh***) **[2]** | | | | | |  |  |  |  |  | | --- | --- | --- | --- | | **Single & Bivariate Data Analysis (15 marks)** | | | | | **1.** | Describe the shape of each graph below. (**Hint: Normal, Positively or Negatively Skewed**) **[2]** | | | | **a).** | | **b).** | | **2.** | The waiting times (in minutes) for patients at 2 doctors’ offices are shown below. | | | |  | **a).** Find the range for each doctor’s office. **[2]**  Dr Watt range **=**  Dr Who range **=**  **b).** Find the median for each doctor’s office. **[2]**  Dr Watt median **=**  Dr Who median **=**  **c).** State which doctor has the shorter waiting  time. **[1]** | | | **3.** | Given the following set of scores: 41 42 43 44 44 45 46 47 48  Find **a).** the median **[1]**  **b).** the lower quartile **[1]**  **c).** the upper quartile **[1]**  **d).** the interquartile range **[1]** | | | | **4.** | This box-and-whisker plot shows the number of customers visiting a convenience store each day.    **a).** What was the range ? **[1]**  **b).** Find the interquartile range. **[1]**  **c).** On what percentage of days were the number of customers over 82 ? **[1]**  **d).** What statistical name is given to the score of 88 ? **[1]** | | | |

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| **Simple & Compound Interest (10 marks)** | |
| **1.** | Find the simple interest on each investment. (**Hint: *I = Prn***)  **a).** $2500 at 4% p.a. for 3 years. **[2]**  **b).** $9500 at 6% p.a. for 7 months. **[2]** |
| **2.** | A car with a marked price of $32 000 is bought on terms for 15% deposit  with monthly repayments of $685 for 4 years.  **a).** Calculate the deposit. **[1]**  **b).** Calculate the total repayment for the 4 years. **[1]**  **c).** Calculate the total cost of the car. **[1]** |
| **3.** | **a).** Find the **amount** that $68 000 grows to over 4 years at 6% p.a.  **interest compounded monthly**. [**Hint:** ***A = P*(1 *+ r*)*n***] **[2]**  **b).** What is the **compound interest** earned on this amount ? **[1]** |

***END OF EXAM***