**GRADE 8 MATHEMATICS**

**TERM 2**

**FORMAL ASSESSMENT TASK 2.1**

**INVESTIGATION: Construction and Properties of Triangles**

**MEMORANDUM**

**SECTION A: INVESTIGATION [50]**

**QUESTION 1**

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|  |  | **Answer** | **Mark descriptor** |
| 1.1 |  | 30  **✓A** | 1A angle of 30  (1) |
| 1.2 |  | 90  **✓A** | 1A angle of 90  (1) |

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|  |  | **Answer** | **Mark descriptor** |
| 1.3 |  | 60  **✓A** | 1A angle of 60  (1) |
| 1.4 |  | 75  **✓A** | 1A angle of 75  (1) |
| 1.5 |  | 135  **✓A** | 1A angle of 135  (1) |

**[5]**

**QUESTION 2**

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|  |  | **Answer** | | **Mark descriptor** |
|  |  | **Construction** | **Description of Construction** |  |
| 2.1 |  | 30  **✓A** | **✓A**   1. Draw a 60angle   (isosceles triangle)   1. Bisect this angle   **✓A** | 1A Construction of angle of 30  (1)  Explanation:  1A isosceles triangle / angle of 60o.  1A Bisect angle of 60o. (2) |
| 2.2 |  | 90  **✓A** | Construct a perpendicular bisector  **✓✓A** | 1A Construction of angle of 90  (1)  2A Explanation of construction of perpendicular bisector (2) |
| 2.3 |  | 60    **✓A** | **✓✓A**   1. Draw / Construct an isosceles triangle | 1A Construction angle of 60  (1)  2A Explanation of construction of 60  (2) |

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|  |  | **Answer** | | **Mark descriptor** |
|  |  | **Construction** | **Description of Construction** |  |
| 2.4 |  | 75 = 90 - 15  **75**  **✓A**  **✓A** | 1. Construct a right angle.   **✓A**   1. On same line , construct a 600 angle. 2. Bisect the 300 angle.   **✓A** | 1A Construction angle of 75  (1)  2A Explanation of Construction of 60  (2) |
| 2.5 |  | 135 = 90 + 45  **✓A**  135 | 1. Construct a right angle.   **✓A**   1. On the same line bisect one of the right angles for a 45o angle.   **✓A** | 1A Construction of angle of 135  (1)  2A Explanation of construction of angle of 135  (2) |

**[15]**

**QUESTION 3**

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|  |  | **Answer** | **Mark descriptor** |
| 3.1 |  | **✓A**  **✓A** | 1A : 60 angle  1A: 5cm side  (2) |
| 3.2 |  | |  |  | | --- | --- | | **Angle** | **Degrees** | | A | 60 | | B | 60 | | C | 60 |   **✓CA**  **✓CA**  **✓CA** | 1CA: angle  1CA: angle  1CA: angle  (3) |
| 3.3 |  | |  |  | | --- | --- | | **Angle** | **Degrees**  **✓CA** | | D | 60  **✓CA** | | E | 60  **✓CA** | | F | 60 | | **Sy** | **Lengte in mm** | | DE | 50mm  **✓CA**  **✓CA** | | EF | 50mm  **✓CA** | | FD | 50mm | | 1CA: angle  1CA: angle  1CA: angle  1CA: side  1CA: side  1CA: side  (6) |
|  |  | **✓A** |  |
| 3.4 | 3.4.1 | equal in length (equidistant)  **✓A** | 1 A  1 A  1 A  (3) |
|  | 3.4.2 | equal (in size)  **✓A** |
|  | 3.4.3 | equilateral triangle |
|  |  |  | **[14]** |

**QUESTION 4**

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|  |  | **Answer** | **Mark descriptor** |
| 4.1 | 4.1.1 | **✓A**  **✓A**  **✓A** | 1A: EF = 7cm 1A: 1A:  (3) |
|  | 4.1.2 | **✓A**  **✓A**  **✓A** | 1A: JK = 6cm  1A: KL = 6cm  1A: .  (3) |
|  |  |  |  |
| 4.2 |  | |  |  | | --- | --- | | **Angle** | **Degrees** | | K | 40o | | L | 70o | | **Sy** | **Length in mm** | | LJ | 4,2cm |  |  |  | | --- | --- | | **Angle** | **Degrees** | | D | 80o | | **Sy** | **Length in mm** | | DE | 5,4cm | | FD | 5,4cm |   **✓CA**  **✓CA**  **✓CA**  **✓CA**  **✓CA**  **✓CA**  **✓A** | 1CA: per angle and side  (6) |
| 4.3 | 4.3.1  4.3.2  4.3.3 | Two sides are equal in equal length  **✓A**  two angles are equal/equal angles opposite equal sides  **✓A**  Isosceles triangle | 1A  1A  1A  (3) |
| 4.4 |  | **✓A** | 1A  (1) |
|  |  |  | **[16]** |

**SECTION B: ASSIGNMENT [30]**

**QUESTION 5**

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|  |  | **Answer** | **Mark descriptor** |
| 5.1 |  | **A**  **C**  **B**  **5cm**  **3cm**  **4cm**  **✓A**  **✓A**  **✓A**  **✓A** | 1A per side  (3) |
| 5.2 |  | C =90  **✓A** | (1) |
| 5.3 |  | Right angle triangle | (1) |
| 5.4  5.5 |  | **✓✓✓A**  **A**  **C**  **B**  **5cm**  **3cm**  **4cm**  **✓A**  **✓A**  **O** | 1A for each bisector  (3)  1A for O point of intersection  1A for inscribed circle  (2) |
|  |  |  |  |
|  |  |  | **[10]** |

**QUESTION 6**

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|  |  | **Answer** | **Mark descriptor** |
| 6.1 |  | TRUE  **✓A** | 1A  (1) |
|  |  |  |  |
| 6.2 |  | 180 - (35 + 63) [ sum of the interior angles of a triangle = 180 ]  = 180 - (98)  **✓A**  = 82 | 1A  (1) |
| 6.3 |  | |  |  |  | | --- | --- | --- | | Equilateral triangle | Isosceles triangle | Right angle triangle | | ‘n Triangle with three sides equidistant and interior angles = 60o.  **✓A**  **✓A** | ‘n Triangle where two sides are equal and equal angles are opposite equal sides.  **✓A**  **✓A** | A triangle where one angle is a right angle ( 900).  **✓A** | | 1A: sides equidistant  1A: interior angles = 600.  1A: two sides are equal  1A: equal angles  1A: right angle  (5) |
|  |  | **T**  **V**  **U**  **25**  **3*x* + 5**  **2*x*** |  |
| 6.4 |  | |  |  | | --- | --- | | Statement  **✓A** | Reason | | 250 + 2*x* + 3*x* + 5 = 1800 | Sum of the interior angles of a triangle = 1800  **✓A** | | 5*x* + 300 = 1800 |  | | 5*x* = 1500  **✓A** |  | | = 300  **✓CA** |  | |  |  |   **NOTE: If the statement is incorrect and the reason is correct: 0 marks.** | 1A: statement  1A reason  1A answer  1CA final answer  (4) |

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| --- | --- | --- | --- |
|  |  | **Answer** | **Mark descriptor** |
| 6.5 |  | **35**  ***a***  ***b***  **60**  **A**  **B**  **C**  **D**   |  |  | | --- | --- | | Statement | Reason | | *a* = 1800 – (600 + 350) | Sum of interior angles of ‘n triangle is = 1800  **✓A** | | = 1800 - 950  **✓A** |  | | = 850 |  | |  |  | | *b* = 1800 - 950  **✓A** | Supplementary angles/ angles on a straight line  **✓A** | | = 850 |  | |  |  | |  |  |   **NOTE: If the statement is incorrect and the reason is correct: 0 marks.** | 1A: **statement & reason**  1A answer  1A: **statement & reason**  1A answer  (4) |
|  |  |  | **[15]** |

**QUESTION 7**

|  |  |  |  |
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|  |  | **Answer** | **Mark descriptor** |
|  |  | |  |  | | --- | --- | | **Statement**  **3cm**  **20cm** | **Reason**  **✓R**  **12cm** | | AD2 = AC2 – CD2 | Pythagoras | | AD =  **✓S** |  | | = |  | | ED = AD - AE |  | | = 16 - 4  **✓A** |  | | = 12cm |  | |  |  | | Area BDCE = ½ (3 + 12) |  | | = ½ (3 + 12) X 12  **✓S** |  | | = ½ (15) (12)  **✓CA** |  | | = 90cm2 |  | | 1 Substitution  1 Reason  1A: ED  1S Substitution  1CA answer  **(or any other correct method)**  (5) |
|  |  |  | **[5]** |