

## GAUTENG DEPARTMENT OF EDUCATION

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| **LEARNER’S NAME & SURNAME** | **:** |  |
| **SUBJECT** | **:** | **MATHEMATICS** |
| **GRADE** | **:** | **9** |
| **TASK** | **:** | **Term 3 Test** |
| **MARKS** | **:** | **50** |
| **DURATION** | **:** | **1 Hour** |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Question** | **1** | **2** | **3** | **4** | **5** | **6** | **Total** |
| **Topic** | MCQ (various Topics) | Functions and Relationships | Graphs | Transformations | Geometry of Straight lines | Geometry of 2D shapes |  |
| **Total Mark** | 5 | 7 | 11 | 5 | 12 | 10 | 50 |
| **Learner Mark** |  |  |  |  |  |  |  |

**Instructions to the learner**

1. Read all the instructions carefully.

2. Question 1 consists of 5 multiple-choice questions. You must circle the letter next to the correct answer.

3. Answer questions 2 to 6 in the spaces provided.

4. All working must be shown.

5. Give a reason for each of your statements in question 5 and 6.

6. The test is out of 50 marks.

7. The test duration is hour.

8. Approved scientific calculators (non-programmable and non-graphical) may be used.

**Question 1 [Multiple Choice]**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1.1 | What is the relationship between the values of and in the table below?   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | | |  |
|  |  |  |  |
|  | A. |  |  |
|  | B. |  |  |
|  | C. |  |  |
|  | D. |  |  |
|  |  |  | (1) |
|  |  |  |  |
| 1.2 | What is the y-intercept of the graph defined by | |  |
|  |  |  |  |
|  | A. |  |  |
|  | B. |  |  |
|  | C. | 5 |  |
|  | D. |  |  |
|  |  |  | (1) |
|  |  |  |  |
| 1.3 | Complete: A ………………….is a quadrilateral where the diagonals are equal. | |  |
|  |  |  |  |
|  | A. | kite |  |
|  | B. | rhombus |  |
|  | C. | rectangle |  |
|  | D. | trapezium |  |
|  |  |  | (1) |
|  |  |  |  |
| 1.4 | The sum of angles on a straight line is ………… | |  |
|  |  |  |  |
|  | A. | 90 |  |
|  | B. | 180 |  |
|  | C. | 270 |  |
|  | D. | 360 |  |
|  |  |  | (1) |
|  |  |  |  |
| 1.5 | The coordinates of point reflected along the are? | |  |
|  |  |  |  |
|  | A. |  |  |
|  | B. |  |  |
|  | C. |  |  |
|  | D. |  |  |
|  |  |  | (1) |
|  |  |  | **[5]** |

**Question 2**

|  |  |  |
| --- | --- | --- |
| 2.1 | Use the given equation and input values to complete the flow diagram below. |  |
|  | A picture containing antenna  Description automatically generated | (3) |
| 2.2 | Complete the following table using the ordered pairs given below. |  |
|  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | | (2) |
| 2.3 | Determine the value of and from the given information in **2.2** above. |  |
|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | (2) |
| **[7]** | | |

**Question 3**

|  |  |  |  |
| --- | --- | --- | --- |
| 3.1 | Use the grid below to answer the questions that follow. | |  |
|  | 3.1.1 | Use any method to draw the graph defined by on the set of axes below. | (3) |
|  | 3.1.2 | Plot and join the points in the table below on the same set of axes as **3.1.1**.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | |  |  |  |  |  |  | | (2) |
|  | Chart, line chart  Description automatically generated | |  |
| 3.2 | Which graph (**3.1.1 or 3.1.2**) drawn above is linear?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | (1) |
| 3.3 | What is the value of the minimum given by the graph in **3.1.2?**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | (1) |
| 3.4 | Determine the equation of the straight-line graph given below | |  |
|  | Chart, line chart  Description automatically generated | |  |
|  || | (4) |
| **[11]** | | | |

**Question 4**

|  |  |  |  |
| --- | --- | --- | --- |
| 4.1 | Identify the type of transformation that took place in the pictures below. | |  |
|  | 4.1.1 | A picture containing shoji  Description automatically generated\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | (1) |
|  | 4.1.2 | Chart, surface chart  Description automatically generated  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | (1) |
| 4.2 | A triangle will be reflected over the line.The table below shows the coordinates for the vertices of the triangle **before** the reflection. What are the coordinates of the image of the reflection? Fill in the image coordinates for each vertex in the table below.   |  |  | | --- | --- | | **Original Image Vertex** | **Reflected Image Vertex** | |  |  | |  |  | |  |  | | | (3) |
| **[5]** | | | |

**Question 5**

|  |  |  |  |
| --- | --- | --- | --- |
| 5.1 | Study the following diagram and write down the **name** of the marked angle.    \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | (1) |
| 5.2 | State whether the lines in the diagrams below are parallel or not and give a reason for your answer. | |  |
|  | 5.2.1.1 | A picture containing diagram  Description automatically generated  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | (2) |
|  | 5.2.2 | Chart, line chart  Description automatically generated  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | (2) |
|  | 5.2.3 | Chart, radar chart  Description automatically generated  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | (2) |
|  |  |  |  |
| 5.3 | Given: and EC bisects  Shape  Description automatically generated  Prove that .   |  |  | | --- | --- | | **Statement** | **Reason** | |  |  | |  |  | |  |  | |  |  | | | (5) |
| **[12]** | | | |

**Question 6**

|  |  |  |  |
| --- | --- | --- | --- |
| 6.1 | Complete the following statements. | |  |
|  | 6.1.1 | The sum of angles in a quadrilateral is …………………. | (1) |
|  | 6.1.2 | The diagonals of a ……………………. and a …………………. bisect at right angles. | (2) |
| 6.2 | Study the diagram below and complete the statement.  Shape  Description automatically generated  If and then the quadrilateral above is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | (2) |
|  |  | |  |
| 6.3 | below is a Trapezium, and .  Shape  Description automatically generated | |  |
|  | 6.3.1 | Calculate with reasons, the size of .   |  |  | | --- | --- | | **Statement** | **Reason** | |  |  | |  |  | |  |  | |  |  | | (3) |
|  | 6.3.2 | Calculate with reasons, the size of .   |  |  | | --- | --- | | **Statement** | **Reason** | |  |  | |  |  | |  |  | | (2) |
| **[10]** | | | |