**MATHEMATICS INVESTIGATION MEOMORANDUM- GRADE 9**

**PART 1**

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| **Diagram** | **Name of the Quadrilateral** | **Length of Side** | **Size of Angle** |
|  | Parallelogram | AB= 5,5cm  BC= 3,8cm  CD= 5,5cm  AD= 3,8cm | ˂ A= 120°  < B= 60°  < C= 120°  < D= 60° |
| **Diagonals** | |
| AC=4,9cm  DB=1,9cm | |

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| **Diagram** | **Name of the Quadrilateral** | **Length of Side** | **Size of Angle** |
|  | Rhombus | AB= 4,3cm  BC= 4,3cm  CD= 4,3cm  AD= 4,3cm | ˂ A= 107°  < B= 73°  < C= 107°  < D= 73° |
| **Diagonals** | |
| AC= 5,3cm  DB= 7,0cm | |

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| **Diagram** | **Name of the Quadrilateral** | **Length of Side** | **Size of Angle** |
|  | Kite | AB= 3,0cm  BC= 4,2cm  CD= 4,2cm  AD= 3,0cm | ˂ A= 80°  < B= 110°  < C= 60°  < D= 110° |
| **Diagonals** | |
| AC=5,9cm  DB=3,9cm | |

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| **Diagram** | **Name of the Quadrilateral** | **Length of Side** | **Size of Angle** |
|  | Rectangle | AB= 7,0cm  BC= 3,8cm  CD= 7,0cm  AD= 3,8cm | ˂ A=90°  < B=90°  < C=90°  < D=90° |
| **Diagonals** | |
| AC=8,0cm  DB= 8,cm | |

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| **Diagram** | **Name of the Quadrilateral** | **Length of Side** | **Size of Angle** |
|  | Isosceles Trapezium | AB= 3,0cm  BC= 5,3cm  CD= 7,5cm  AD 5,3cm | ˂A= 115°  <B= 115°  <C= 65°  <D= 65° |
| **Diagonals** | |
| AC= 7,0cm  BD= 7,0cm | |

* 1. Calculate the sun of interior angle of the quadrilateral. (2)

Sum of interior angles = ˂A+ ˂B + ˂C + ˂D =360° **\*Allocate 2marks for parallel sides correctly indicated and symbolised. EXCEPTION KITE**

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| --- | --- | --- | --- | --- | --- | --- |
| Quadrilateral | Square | Parallelogram | Rhombus | Rectangle | Trapezium | Kite |
| Opposite sides equal |  |  |  |  |  |  |
| Adjacent sides equal |  |  |  |  |  |  |
| Interior angles all 90° |  |  |  |  |  |  |
| Opposite angles equal |  |  |  |  |  |  |
| Only one pair of opposite angles equal |  |  |  |  |  |  |
| Opposite sides parallel |  |  |  |  |  |  |
| Only one pair of opposite sides parallel |  |  |  |  |  |  |
| Diagonals bisect |  |  |  |  |  |  |
| Diagonals equal |  |  |  |  |  |  |
| Diagonals perpendicular |  |  |  |  |  |  |

\*Award max of 2marks per column; 1mark if **ONLY 1** is incorrect

**PART 2**

2. Using your findings, answer the following questions

2.1 Name two quadrilaterals which are special kinds of parallelogram.

**Rectangle, Square, Rhombus**

2.2 **Square** is a special kind of rectangle.

2.3 **Square** and **Rhombus** are parallelograms with all sides equal.

2.4 Write down names of two quadrilateral which their diagonals do not bisect each other.

**Kite, Trapezium**

2.5 Quadrilateral with diagonals that are perpendicular to each other is

**Rhombus, Kite, Square**

2.6 Quadrilaterals with equal diagonals are

**Square, Rhombus**

2.7 Quadrilateral with only one pair of opposite side equal is

**Trapezium**