**MID TERM SERIES TERM 1-2023**

**MATHEMATICS PAPER 1 (121/1)**

**FORM FOUR (4)**

**TIME: 2 ½ HOURS**

MARKING SCHEME

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  |  | M1  M1  A1 | Fraction saved i.e. seen |
| **Total** | **3** |
|  | LCM of 30 and 40   |  |  |  | | --- | --- | --- | | 2 | 30 | 40 | | 2 | 15 | 20 | | 2 | 15 | 10 | | 3 | 15 | 5 | | 5 | 5 | 5 | |  | 1 | 1 |   Time difference between 3 p.m. and 7.50 a.m.  Hence 3 times | M1  M1  A1 | LCM of 30 and 40  Time difference |
| **Total** | **3** |
|  |  | B1  B1  B1 |  |
| **Total** | **3** |

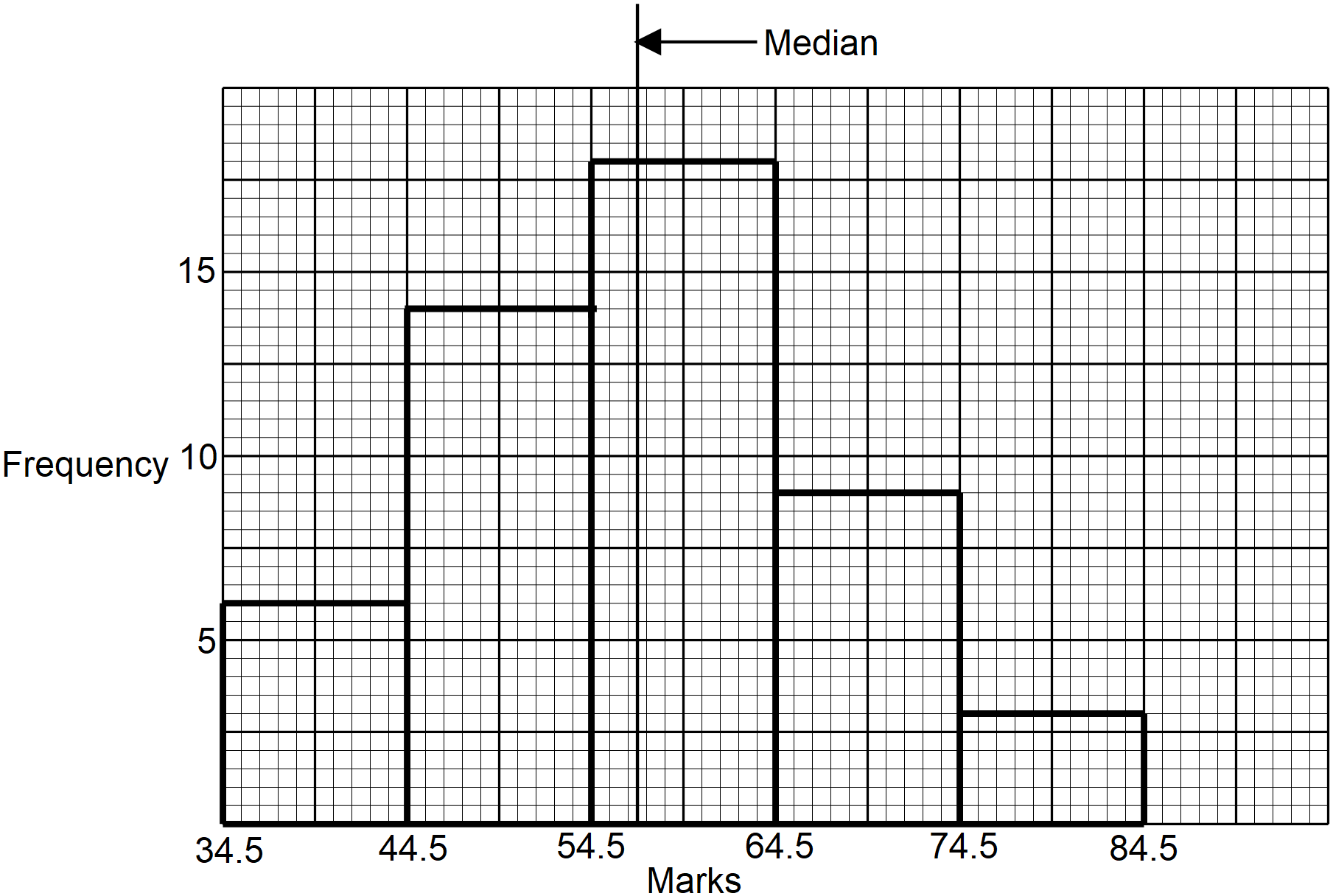
|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | Nonagon | M1  A1  B1 |  |
| **Total** | **3** |
|  | Hence the inequalities | B1  B1  B1 |  |
| **Total** | **3** |
|  |  | M1  M1  A1 | Distance Otonglo to Rabuor |
| **Total** | **3** |
|  |  | M1  M1  A1 | Expansion of and  Collection of like terms |
| **Total** | **3** |
|  |  | M1  M1  A1 | Commission at 5% |
| **Total** | **3** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  |  | B1  M1  A1 |  |
| **Total** | **3** |
|  |  | M1  M1  M1  A1 |  |
| **Total** | **3** |
|  |  | B1  B1  B1, B1 | First pair, second pair |
| **Total** | **4** |
|  |  | B1  B1  B1 | Bisecting PR  Completing the rhombus and labeling Q and S |
| **Total** | **3** |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | M1  M1  A1 | Forming two equations in and  Correct attempt to solve the equations simultaneously  Both values of and correct |
| **Total** | **3** |
|  |  | M1  M1  M1  A1 | Change in volume |
| **Total** | **4** |
|  |  | B1  B1  B1 | Correct net drawn  Correct labeling  Correct path shown |
| **Total** | **3** |
|  | |  |  | | --- | --- | | 11 | 161,051 | | 11 | 14,641 | | 11 | 1,331 | | 11 | 121 | | 11 | 11 | |  | 1 | | M1  A1 | Expressing 161,051 in index form |
| **Total** | **3** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Capacity of milk 2. Number of packets 3. Number of boxes 4. Buying price | M1  A1  M1  A1  M1  A1  M1  A1  M1  A1 |  |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Modal class 2. Frequency Distribution table  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Marks |  |  |  |  | | 35 – 44 | 6 | 39.5 | 237 | 6 | | 45 – 54 | 14 | 49.5 | 693 | 20 | | 55 – 64 | 18 | 59.5 | 1071 | 38 | | 65 – 74 | 9 | 69.5 | 625.5 | 47 | | 75 - 84 | 3 | 79.5 | 238.5 | 50 | |  |  |  |  |  |  1. Mean 2. Median on histogram   Area of bars  Median | B1  B1  B1  B1  M1  A1  M1  A1  B1, L1 | All the class boundaries correct  All the frequencies correct  All correct |
|  | **Total** | **10** |  |



|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. at   At   1. At rest instantaneously, 2. Displacement at 3. Acceleration at | M1  M1  A1  M1  M1  A1  M1  A1  M1  A1 | Differentiating with respect to  Quadratic formula or otherwise e.g. factorisation, etc.  Square root of 169 or factors  A0 if not shown and discriminated |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Time of meeting 2. Distance from A   Time = 11.20 a.m. – 8.15 a.m.=3 hours 5 minutes   1. Motorist distance to A | M1  M1  M1  A1  M1  A1  M1  M1  M1  A1 | Both relative distance and relative speed  Relative time  Arrival time  Time to arrive at A |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. (i)   But      (ii)        (iii)    )     1. Values of and | M1  A1  M1  A1  B1  M1  M1  M1  A1 | Equating the corresponding coefficient  Correct attempt to solve for any variable  Both values correct |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Consider ΔEGF   Hence   1. Calculations 2. Let            1. Shaded area   Area of kite EFGH  Area of sector EFH  Shaded area  Shaded area  Shaded area | M1  A1  B1  M1  A1  B1  M1  M1  M1  A1 |  |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. Table  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  1. Graph      1. Solutions        1. Equation of line of symmetry | B2  S1  P1  C1  L1  B1  B1  L1  B1 | All values of y correct (B1 for at least 5 correct)  Linear scale used on both axes  Plotting  Smooth curve drawn  Line drawn  Line of symmetry drawn  Equation given |
| **Total** | **10** |

|  |  |  |  |
| --- | --- | --- | --- |
| **NO.** | **WORKING** | **MARKS** | **REMARKS** |
|  | 1. angles, with reasons 2. ∠DGE   Angles subtended by the same arc ED at the circumference are equal.  Angles subtended by the same arc BD at the circumference are equal.  Sum of angles in ΔBDE adds up to 1800  Angle between a chord BG and a tangent AB equals to the angle subtended by the same chord BG on the circumference in the alternate segment  Opposite angles of cyclic quadrilateral FGDE add up to 1800   1. ∠DBC   Opposite angles of cyclic quadrilateral FGBE add up to 1800  Sum of angles on a straight line equals 1800   1. Let | B1  B1  B1  B1  B1  B1  B1  M1  M1  A1 |  |
| **Total** | **10** |