**Mathematics Form 4**

**Alternative A.**

**Paper 1**

**Marking Scheme**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  | Eric  Isaac  Nyakaru | M1  M1  A1 |  attempt to find Nyakaru’s fraction |
|  | **Total** | **3** |  |
|  | 1. LCM of 600 and 420       LCMmmmetres  Aream2   1. Least number of tiles | M1  M1, A1  B1 | Getting the LCM of 600 and 420 |
|  | **Total** | **4** |  |
|  | Perimeter | M1  A1 | Summing up all the lengths |
|  | **Total** | **2** |  |
|  | Let the height of the bigger cylinder be          cm | M1  M1  A1 |  attempt to determine the linear scale factor |
|  | **Total** | **3** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  |  | B1  B1  B1 | Location of centre  Enlargement  Centre ; scale factor |
|  | **Total** | **3** |  |
|  | Curved surface area of the roller    Number of revolutions | M1  M1, A1 |  |
|  | **Total** | **3** |  |
|  | (discriminate) and  Hence north bound bus km/h | M1  M1  A1  B1 | Application of Pythagoras theorem  Solution of quadratic equation formed  Both values |
|  | **Total** | **4** |  |
| **No.** | **Working** | **Marks** | **Comments** |
|  | Integral values   1. Number line | B1  B1  B1  B1 | First simple inequality  Second simple inequality  Integral values |
|  | **Total** | **4** |  |
|  | Hence more men | M1  M1, A1 |  |
|  | **Total** | **3** |  |
|  |  | M1  M1  A1 |  |
|  | **Total** | **3** |  |
|  | cm  Capacity cm3  Capacity litres | M1  M1  A1 |  |
|  | **Total** | **3** |  |
| **No.** | **Working** | **Marks** | **Comments** |
|  | Let | M1  M1  A1 |  |
|  | **Total** | **3** |  |
|  |  | M1  M1, A1 |  |
|  | **Total** | **3** |  |
|  |  | M1  M1  A1 |  |
|  | **Total** | **3** |  |
|  |  | B1  B1  B1 |  |
|  | **Total** | **3** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  |  | B1  B1  B1 | Correct net  Correct distances and measurements  Correct labeling |
|  | **Total** | **3** |  |
|  | 1. Operational costs’        1. Linda’s share   Equally    In the ratio    Total     1. Jenipher’s share   In the ratio    Total  Number of hives =  Remaining amount | M1  A1  M1  M1  M1  A1  M1  M1  M1  A1 |  |
|  | **Total** | **10** |  |
| **No.** | **Working** | **Marks** | **Comments** |
|  | 1. metres     Area of segments      Cross Sectional area  m2   1. Volume   m3  Capacity litres  litres (to the nearest one thousand litres) | B1  B1  M1, M1  M1  A1  M1  A1  B1 |  |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  | 1. Table  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  |  |  |  | |  |  |  |  |  |  |  |  |  |  1. Graph      1. (i) , ,   (ii)      , and (exact values only) | B2  S1  P1  C1  B1, B1  M1  L1  B1 | All y values  (B1 for at least 5 ) |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  | Frequency distribution table   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Mass |  |  |  |  |  | | 5 – 14 |  |  |  |  |  | | 15 – 29 |  |  |  |  |  | | 30 – 49 |  |  |  |  |  | | 50 – 54 |  |  |  |  |  | | 55 – 62 |  |  |  |  |  | |  | Ʃf |  | Ʃf |  |  |  1. Mean 2. Frequency polygon  |  |  |  |  |  | | --- | --- | --- | --- | --- | | Mass |  | Limits |  |  | | 5 – 14 |  | 4.5 – 14.5 |  |  | | 15 – 29 |  | 14.5 – 29.5 |  |  | | 30 – 49 |  | 29.5 – 49.5 |  |  | | 50 – 54 |  | 49.5 – 54.5 |  |  | | 55 – 62 |  | 54.5 – 62.5 |  |  | |  | Ʃf |  |  |  |      1. Area of bars       Median      Median | M1  M1  M1, A1  M1  S1  B1  L1  M1  A1 |  |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  | At  Equation         1. (i) Stationary points             and  When    When    Hence the stationary points; and  (ii) Nature of stationary    hence  Maximum stationary point  hence  Minimum stationary point | M1  A1  M1  M1  A1  M1  A1  B1  B1  B1 |  |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  | 1. (i)         (ii)     1. (i)     But  Hence  (ii) Comparing coefficients of and in and         1. Consider vectors and     Hence  Point A is common hence A, R and Q are collinear | B1  B1  B1  B1  M1  M1  A1  B1  B1  B1 |  |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  | Consider and point Q      hence   1. Let the gradient of the perpendicular bisector be     Midpoint         1. Equation of PR                   Hence R | M1  M1  A1  M1  M1  M1  A1  M1  A1  B1 |  |
|  | **Total** | **10** |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Working** | **Marks** | **Comments** |
|  | 1. (i) Matatu distance in 40 minutes   km  Remaining distance km  Relative speed km/h  Time taken to meet hours = 1 hour 20 minutes  Meeting time: 8.30 a.m. + 40 minutes + 1 hr 20 minutes  a.m.  (ii) Distance  km   1. (i) Time 1 hour 12 minutes   Leaving time  10.30 a.m. – 1 hr 12 minutes  a.m.  (ii) 11.00 a.m.  9.18 a.m.-  1 hour 42 minutes  Distance km  Distance from Lamu km | M1  M1  A1  M1  M1, A1  M1  A1  M1  A1 |  |
|  | **Total** | **10** |  |