Form 1

MATHEMATICS

**MARKING SCHEME**

**SECTION I (50 MARKS)**

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **WORKING** | **MARKS** | **REMARKS**  |
|  | 1. Ten millions, one thousand and one
2. 100 000

+ 9100 009 | B1B1M1A1 |  |
|  |  | 4 |  |
|  | $$\frac{27.72 ×0.3876 × 10^{6}}{2.09×0.4284× 10^{6}}$$$$\frac{2772 ×3876 }{209×4284}$$ = 12 | M1M1A1 |  |
|  |  | 3 |  |
|  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 2 | 1470 |  | 2 | 7056 |
| b3 | 735 |  | 2 | 3528 |
| 5 | 245 |  | 2 | 1764 |
| 7 | 49 |  | 2 | 882 |
| 7 | 7 |  | 3 | 441 |
|  | 1 |  | 3 | 147 |
|  |  |  | 7 | 49 |
|  |  |  | 7 | 7 |
|  |  |  |  | 1 |

$$\frac{\left(2×3×5×7^{2}\right)^{2}}{\sqrt{2^{4}×3^{2}×7^{2}}}= \frac{2^{2}×3^{2}×5^{2}×7^{4}}{2^{2}×3^{1}×7^{1}}=3 × 5^{2}×7^{3}$$ | M1M1A1 | (first table)(second table) |
|  |  | 3 |  |
|  |

|  |  |  |  |
| --- | --- | --- | --- |
| 2 | 15 | 20 | 24 |
| 2 | 15 | 10 | 12 |
| 2 | 15 | 5 | 6 |
| 3 | 15 | 5 | 3 |
| 5 | 5 | 5 | 1 |
|  | 1 | 1 | 1 |

$$15×2×2×2=120 seconds=2 minutes$$8.13am + 2 minutes = 8.15am | M1M1A1 |  |
|  |  | 3 |  |
|  | 181 – 5 =175236 – 5 = 231

|  |  |  |
| --- | --- | --- |
| 7 | 175 | 231 |
|  | 25 | 33 |

The number is 7 | M1M1A1 | Subtracting 5 from each numberTable  |
|  |  | 3 |  |
|  | $$\frac{-8+\left(-5\right)×\left(-8\right)-(-6)}{-3+(-8)÷2×4}$$**Numerator**:$$-8+\left(-5\right)×\left(-8\right)-(-6)$$ $=38$**Denominator**:$$-3+(-8)÷2×4$$ $= -19$**Quotient**:$$\frac{38}{-19}$$ | M1M1A1 |  |
|  |  | 4 |  |
|  | $$\frac{\frac{1}{2}+\frac{1}{3}}{\frac{1}{7} of \left(\frac{2}{5}- \frac{1}{6}\right)}+ \frac{1}{2}$$$$\frac{1}{2}+\frac{1}{3}= \frac{5}{6}$$$$\frac{1}{7} of \left(\frac{2}{5}- \frac{1}{6}\right)=\frac{1}{7} of \frac{7}{30}= \frac{1}{30} $$$$\frac{5}{6} ×30=25$$$$25+ \frac{1}{2}=25\frac{1}{2}$$ | M1M1A1 |  |
|  |  | 3 |  |
|  | $$100r=15.1515151515…$$$$ r=0.151515151515…$$$ 99r=15$$$r=\frac{15}{99}= \frac{5}{33}$$ | M1M1A1 |  |
|  |  | 3 |  |
|  | 1. $\sqrt{0.57}=\sqrt{57 ×10^{-2}}$

$$ =7.5498 × 10^{-1}$$$$ =0.75498$$1. $\left(356.8\right)^{2}= \left(3.568 × 10^{2}\right)^{2}$

$$ = 12.731 × 10^{4}$$$$ = 127 310$$ | M1A1M1A1 |  |
|  |  | 4 |  |
|  | Numerator:$$m\left(2-a\right)- y\left(2-a\right)$$$$\left(2-a\right)(m- y)$$Denominator:$$2\left(m+y\right)- a\left(m+y\right)$$$$\left(m+y\right)(2- a)$$$$\frac{\left(2-a\right)(m- y)}{\left(m+y\right)(2- a)}$$$$\frac{(m- y)}{\left(m+y\right)}$$ | M1M1A1 |  |
|  |  | 3 |  |
|  | $\left(x-y\right)- z=\left(2--3\right)-5$ $$ =5-5$$$$ =0$$ | M1M1A1 |  |
|  |  | 3 |  |
|  |

|  |  |  |
| --- | --- | --- |
| a | b | c |
| 3 | 4 |  |
|  $\frac{15}{4}$ | 5 | 7 |

$$\frac{15}{4} :5 :7$$$$15 :20 :28$$ | M1M1A1 |  |
|  |  | 3 |  |
|  | $$volume= \frac{mass}{density}$$$$ = \frac{1.5}{2500}$$$$ =0.0006m^{3} or 600 cm^{3}$$ | M1M1A1 |  |
|  |  | 3 |  |
|  |  12. 15$-$2 25 9. 50 am | M1M1\A1 |  |
|  |  | 3 |  |
|  | $$120\% ≡3 600$$$$100\% ≡ ?$$$$\frac{3600 ×100}{120}$$$$ =sh.3000$$ | M1M1A1 |  |
|  |  | 3 |  |
|  | $$weight=mg $$$$weight=1.5 ×1.6$$$$weight=2.4 N$$ | M1M1A1 |  |
|  |  | 3 |  |

SECTION II (50 marks)

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **WORKING** | **MARKS** | **REMARKS**  |
|  | 1. V = (L $×$ W $×$ H) + (1/2 b x h x l)

 = (30 x 14 x 1) + (1/2 x 3 x 30 x14) = (420 + 630) = 1050m31. $( 1050 ×1000 000$

1 050 000 000cm31. volume drained per second

 = 3.14 x 72 x 500 = 76930cm3 1050 x 100000 = 13648.77seconds 76930 13648.77 =227minutes  60  | M1M1M1A1M1A1M1M1M1A1 |  |
|  |  | 10 |  |
|  | 1. (i) $\frac{55}{100}×3 800 000$

$$ 2 090 000$$(ii) $\frac{45}{100}×3 800 000$$$ 1 710 000$$1. (i) $Second highest contributor= \frac{3}{12}×1 710 000$

$$ = 427 500$$(ii) $Highest contributor= \frac{6}{12}×1 710 000$$$ = 855 000$$ $Lowest contributor= \frac{1}{12}×1 710 000$$$ = 142 500$$ $Difference= 855 000-142 000$$$ = 712 500$$ | M1A1M1A1M1A1M1M1M1A1 |  |
|  |  | 10 |  |
|  | 1. Vegetables = $\frac{1}{4}$

Remainder = $\frac{4}{4}- \frac{1}{4}= \frac{3}{4}$ Maize = $\frac{1}{3} of \frac{3}{4}= \frac{1}{3} × \frac{3}{4}= \frac{1}{4}$Vegetables + Maize = $\frac{1}{4}+\frac{1}{4}= \frac{1}{2}$Remainder = $\frac{2}{2}- \frac{1}{2}= \frac{1}{2}$ Beans = $\frac{1}{5} of \frac{1}{2}= \frac{1}{5} × \frac{1}{2}= \frac{1}{10}$Vegetables + Maize + Beans  = $\frac{1}{4}+\frac{1}{4}+\frac{1}{10}= \frac{12}{20}=\frac{3}{5}$Grazing = $\frac{5}{5}-\frac{3}{5}= \frac{2}{5}$ Therefore $\frac{2}{5}=30 hectares$Kamau’s piece of land = $\frac{5}{2} ×30 ha=75 ha$Piece of land under maize = $\frac{1}{4} ×75 ha=18.75 ha$1. Bags of beans harvested that year

Piece of land under beans = $\frac{1}{10} ×75 ha=7.5 ha$Number of bags of beans $=7.5 ha×18$ $ =7.5 ha×18$$$ =135bags$$1. money received from the sale of beans

$$Number of bags sold=\frac{4}{5} ×135=108 bags $$$$Money received=108×Kshs 2000$$$$ =Kshs. 216 000 $$ | M1M1M1M1A1M1M1A1M1A1 |  |
|  |  | 10 |  |
|  | 1. $Area of the floor= 80m ×62m$

$$ =4960m^{2}$$1. (i) $80-4=76m$

$$ 62-4=58m$$ $Area of the floor covered with tiles$$$ = 76m ×58m$$$$ =4960m^{2}$$(ii) $Area of the floor covered with tiles$$$ = 4960m^{2}-4408m^{2}$$$$ =552m^{2}$$(iii) $Area of one tile=0.5m×0.5m$$$ =0.25m^{2}$$ $Total number of tiles used = \frac{4408}{0.25}$$$ =17 632 Tiles$$$$ Total number of cartons = \frac{17 632}{16}$$$$ =1102 cartons$$ | M1A1M1A1M1A1M1M1M1A1 |  |
|  |  | 10 |  |
|  | 1. $volume=40×30×580$

$$ =696 000cm^{3}$$$$ =\frac{696 000cm^{3}}{1000000}=0.696m^{3}$$1. (i) $volume of removed solid= \frac{22}{7}×14×14×580$

$$ =357 280cm^{3}$$$$ =\frac{357 280cm^{3}}{1000000}$$$$ =0.357 280m^{3}$$(ii) $ volume of removed solid= 0.696-0.35728$$$ =0.33872m^{3}$$1. $mass=density ×volume$

$$ =3500×0.33872m^{3}$$$$ =1185.52kg $$ | M1M1A1M1M1A1M1A1M1A1 |  |
|  |  | 10 |  |