**MIDTERM 3 2022**

 **FORM I MATHEMATICS EXAM**

**MARKING SCHEME**

|  |  |  |  |
| --- | --- | --- | --- |
| **No** | **WORKING** | **AWARD** | **EXPLANATION** |
| **1.** | (a)*-10-(-3)=-7* -11 -10 -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 (b)*+1-(-8)=+9*   -1 0 1 2 3 4 5 6 7 8 9 10 11  | **A1****M1****A1****M1** | Correct answerCorrect lineCorrect answerCorrect line |
| **2.** |  $\left\{\left(1\frac{1}{4}-\frac{3}{8}\right)÷2\frac{1}{2}+1\frac{3}{4}÷1\frac{1}{4}\right\}$**BODMAS** $\left(1\frac{1}{4}-\frac{3}{8}\right)=\left(\frac{5}{4}-\frac{3}{8}\right)=\frac{10-8}{8}=\frac{7}{8}$ =$\frac{7}{8}÷2\frac{1}{2}=\frac{7}{8}÷\frac{5}{2}=\frac{7}{8}×\frac{2}{5}=\frac{7}{20}$ $1\frac{3}{4}÷1\frac{1}{4}=\frac{7}{4}÷\frac{5}{4}=\frac{7}{4}×\frac{4}{5}=\frac{7}{5}$ $=\frac{7}{20}+\frac{7}{5}=\frac{7+28}{20}=\frac{35}{20}$  $=1\frac{3}{4}$ | **M1****M1****A1** | *Removing brackets**Addition* |
| **3.** |  $\frac{29}{36}\rightarrow Sh.330$ $ \frac{36}{36}\rightarrow ?$  =$\frac{36}{36}×Sh.330÷\frac{29}{36}$ = $\frac{36}{36}×Sh.330×\frac{36}{29}$ =$ Sh.409.66$ =$ Sh.410$ | **M1****B1****A1** |  |
| **4.** |  $Distance=Speed×Time$ =$56×2\frac{1}{2} $  $=140Km$ | **M1****M1****A1** |  |
| **5.** | $\frac{x+1}{2}+\frac{2x+1}{3}=9$$6(\frac{x+1}{2})+6(\frac{2x+1}{3})=9×6$ $3x+3+4x+2=54$ $7x+5=54$ $7x=54-5$ $7x=49$ $x=\frac{49}{7}$, $x=7$ | **M1****M1****A1** |  |
| **6.** |  $90\%\rightarrow Sh.3150$ $100\%\rightarrow ?$ $=\frac{100\%×Sh.3150}{90\%}$ $ =Sh.3500$ | **M1****M1****A1** |  |
| **7.** |   A B  Or   A B | **M1****M1****B1****OR****B1****M1****M1** | **METHOD 1**Construction of an acute angle.Subdivision of the line obtainedConstruction of parallel lines(Use of a set square. **METHOD 2** Construction of equal acute angles at A and B. Dividing the two line obtained equally.Joining the subdivisions |
| **8.** | a) $=\frac{3}{4}×100$ $=75\%$  b) $r=2.304304$ $10r=23.04304$ $100r=230.4304$ $1000r=2304.304$ $1000r-r=2304.304304-2.304304$ $999r=2302$ $r=\frac{2302}{999}$ $ =2\frac{304}{999}$  | **M1****A1****M1****A1** |  |
| **9.** | *5,005,005,005* | **M1****M1****A1** |  |
| **10** |  $=\frac{6}{20}=\frac{3}{10}$ | **M1****B1** | *Total count* *Simplification* |
| **11** | *(i)70.864**Value= 70* | **M1****B1** | *Correct calculation**Correct value* |
| **12** | *(a) 0**(b) 2500* | **M1****M1** |  |
| **13** |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *3* | *3* | *7* | *11* | *13* |
| *7**11**13* | *1**1**1**1* | *7**1**1**1* | *11**11**1**1* | *13**13**13**1* |

*Lcm 3 x 7 x 11 x 13* *= 3003 + 1* *= 3004* | **M1****M1****A1** |  |
| **14** | *Let the exterior angle be x**7x + x =180**8x=180**X=22.5**n =* *n = 16 sides* | **M1****M1****A1** |  |
| **15** | *=2(-6) – 3(-2) +4**=-2* | **M1****A1** | *substitution* |
| **16** |  *1 Chinese Yen=KSh. 12.34**195250Chinese Yen=?*$=\frac{195250×12.34}{1}=KSh.2,409,385$ *Balance =*$ KSh.2,409,385-KSh.1,258,000$$=KSh.1,151,385$ *KSh. 11.35=1 South African Rand*$KSh.1,151,385$*=?* *=* $\frac{1,151,385×1}{11.35}$ *=*$ 101,265.17$ *S.A Rand* *=*$ 101,265 S.A Rand$ | **M1****B1****A1** |  |
| ***SECTION II: Mark any five questions (50 Marks)*** |
| **17** | (a)(b) (i) PR =11.3 x 10 = 113*m*$\pm 1m$  Bearing S670W OR 2470  (ii)SR = 10.2 x10 = 102 $m$ $\pm 1m$  Bearing 180°  | **M1****M2****M2****B1**M1A1M1A1 | Construction of the angle at P and locating Q.Locating R at QLocating S.AccuracyAward 1 mark only if Northern lines are not parallel |
| **18**  |  (a)  C   E  70 **Q**  **R** 25 **P**  A 100 160 B **M** 120 200  50 **N** 80 **O** D F(b)(i)$M\rightarrow \frac{1}{2}×100×50=2500m^{2}$  $N\rightarrow \frac{1}{2}×\left(50+80\right)=3900m^{2}$ $O\rightarrow \frac{1}{2}×80×120=4800m^{2}$ $P\rightarrow \frac{1}{2}×25×80=1000m^{2}$ $Q\rightarrow \frac{1}{2}×\left(70+25\right)×80=3800m^{2}$ $R\rightarrow \frac{1}{2}×700×120=4200m^{2}$ $Total Area=20,200m^{2}$ (ii)$= \frac{20200}{10000}=2.02 ha$ | **M2****M2****M1****M1****M1****A1****M1****A1** | *Drawing the base line and the off sets.**Labeling**Indicating the measurements correctly* |
| **19** | (a) total sales = sh 360 x 500  = sh.180, 000 Commission  = sh $\frac{20}{100}\left(180,000 – 100,000\right)$ = sh.16000 Total ernings=sh.16000+sh12000 =sh.28000(i) New salary  = sh.(12000 + 12000 x 10/100) = sh. 13200 Commission paid = sh(17,600 -13,200)  = sh.4400 Commission is paid on $\frac{100×4400}{20}$ = sh.22,000Total sales = sh.22,000 + 100,000  =sh.122,000/=(ii) no of handbags sold = $\frac{122,000}{500}$ = 244 Bags | **M1****M1****B1****A1****M1****M1****M1****A1****M1****A1** |  |
| **20** | (a) C  8cm A 7cm B(b) (i) $=7.7cm \pm 0.1$ (ii)$ =53^{0} \pm 1^{0}$(c)$=6.1cm\pm 0.1$ | **M1****M1****M1****M1****M1****A1****A1****M1 M1****A1** | *-Construction of line AB**-Construction of angle ABC with compass &a ruler only.* *Accuracy**Bisector*  |
| **21** | **Y-Axis**   **1600** **1400** **1200****12x + 4y =5600** **1000** **800****15x + 9y =7800** **600**  **400** **200**  **X-Axis**  **0** **200 400 600 800 1000 1200 1400 1600** *(b) (i) One Artisan=Sh. 400* *(ii) One Apprentice = Sh. 200* | **M1****M1****M1****M1****M1****M1** | *Proper Scale**Plotting of two points.**Drawing & Labeling the lines* |