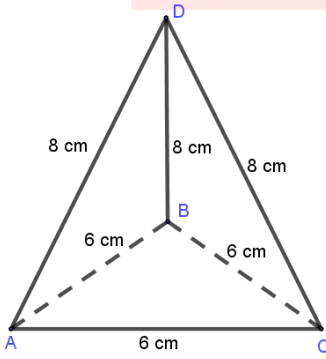
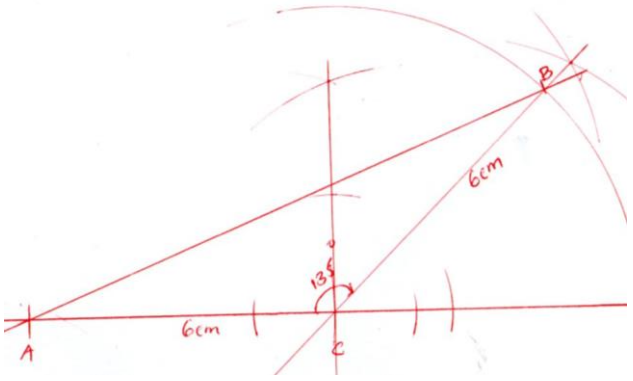


**OPENER EXAMINATION: TERM 1 2024
FORM TWO**

MATHEMATICS MARKING SCHEME

No	Workings	Marks/comments																
1	a) 8,642 b) Hundreds and total value 600	B1 B2																
2	Selling price = Sh. 1 080 000 Cost price = Sh. 600 000 + 100 000 = 700 000 Profit = Sh. 1 080 000 – 700 000 = Sh. 380 000 Percentage profit = $\frac{380\,000}{1\,080\,000} \times 100\% = 54.29\%$	M1 M1 A1																
3	$volume\ of\ liquid = \frac{384}{0.6} = 640cm^3$ $height\ of\ liquid = \frac{640}{\pi \times 3.2^2}$ = 19.89cm	M1 M1 A1																
4	$N = -6 + 7 = 1$ $D = -9 + 2 + 4 = -3$ $\frac{1}{-3} = \frac{-1}{3}$	B1 B1 A1																
5	$r = 4.353535 \dots\dots\dots$ (i) $100r = 435.353535 \dots$ (ii) Subtract (i) from (ii) $99r = 431$ $r = 4\frac{35}{99}$ Value of $a = 35$ and $b = 99$ $b - a = 99 - 35 = 64$	M1 M1 both values A1																
6	$23.50 + (7h\ 15min + 5h40\ min + 45\ mins) = 1330hr$ 1.30p.m on monday	M1 A1																
7	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>2</td><td>240</td><td>320</td><td>380</td></tr> <tr><td>2</td><td>120</td><td>160</td><td>190</td></tr> <tr><td>5</td><td>60</td><td>80</td><td>95</td></tr> <tr><td></td><td>12</td><td>16</td><td>19</td></tr> </table> $2 \times 2 \times 5 = 20$ $area = 20 \times 20 = 400cm^2$	2	240	320	380	2	120	160	190	5	60	80	95		12	16	19	M1 B1 A1
2	240	320	380															
2	120	160	190															
5	60	80	95															
	12	16	19															
8	$\sqrt{98.29} = 9.141$ $(2.475)^2 = 6.135$ $\Rightarrow 9.141 + 6.135 = 16.0491$	M1 M1 A1																
9	$A = \frac{\phi}{360} \pi r^2$																	

	$\frac{105}{360} \times \frac{22}{7} \times 24 \times 24$ $\frac{1330560}{2520}$ $= 528cm^2$	M1 B1 A1
10	a) $farming + sch\ fees = \frac{1}{8}x + \frac{1}{2}x = \frac{5}{8}x$ $food = \left(\frac{2}{3} \times \frac{3}{8}x\right) = \frac{1}{4}x$ $salary = \frac{4 \times 3200}{1} = Sh. 12\ 800$ b) $sch\ fees = \frac{1}{2} \times 12\ 800 = sh. 6400$	M1 A1 B1
11	$x = 50^\circ$ Angle PQA and angle BAQ are alternate angles $y = 180 - (50 + 86) = 44^\circ$ Angle sum of a triangle	B1 B1 for both reasons B1
12	a) $300 = 2 \times 2 \times 3 \times 5 \times 5$ $2^2 \times 3^1 \times 5^2$ b) $24 = 2 \times 2 \times 2 \times 3 = 2^3 \times 3^1$	M1 A1 B1
13	$\frac{22}{7} \times 0.7 \times 0.7 \times 1.2 \times \frac{2}{3} = 1.232m^3$ Volume = $1.232 \times 1000 = 1232litres$	M1 M1 A1
14		B1 for correct solid B1 for correct measurements B1 for labelling ABCD
15		B1 for line AC and BC B1 for angle BCA B1 for complete triangle

	 <p>$AB = 11 \pm 0.1 \text{ cm}$</p>	B1																								
16	<p>a) $\frac{2(y+2)}{(2+y)(2-y)}$</p> <p>$\frac{2-y}{2}$</p> <p>b) $\frac{2m(4n-3)+2n(4n-3)}{2(4n-3)}$</p> <p>$\frac{(2m+2n)(4n-3)}{2(4n-3)}$</p> <p>$\frac{2m+2n}{2}$</p>	M1 A1 M1 A1																								
17	<p>a)</p> <table border="1" data-bbox="256 1008 1071 1092"> <tbody> <tr> <td>s</td> <td>0</td> <td>5</td> <td>10</td> <td>15</td> <td>20</td> <td>25</td> <td>30</td> <td>35</td> <td>40</td> <td>45</td> <td>50</td> </tr> <tr> <td>d</td> <td>0</td> <td>1.5</td> <td>4</td> <td>7.5</td> <td>12</td> <td>17.5</td> <td>24</td> <td>31.5</td> <td>40</td> <td>49.5</td> <td>60</td> </tr> </tbody> </table>	s	0	5	10	15	20	25	30	35	40	45	50	d	0	1.5	4	7.5	12	17.5	24	31.5	40	49.5	60	B2 for all correct values B1 for 6 correct values
s	0	5	10	15	20	25	30	35	40	45	50															
d	0	1.5	4	7.5	12	17.5	24	31.5	40	49.5	60															

b) Plotting = B2, Curve = B1 and Axis = B1



	<p>c) (i) $d = 33 \text{ m}$ (ii) $d = 71.5 \text{ m}$ (iii) $s = 42 \text{ km/hr}$</p>	<p>B1 B1 B1 B1</p>
18	<p>a) $A = \frac{1}{2} \times 10 \times (16 + 40)$ $5 \times 56 = 280 \text{ cm}^2$</p> <p>b) (i) $\text{length} = \frac{150}{360} \times \frac{22}{7} \times 10.5 \times 2$ 27.5 cm (ii) $27.5 = \frac{22}{7} \times D$ $D = 8.75 \text{ cm}$ and $\text{Radius} = 4.375$</p> <p>c) $\text{area of outer rectangle} = 15 \times 10 = 150 \text{ m}^2$ $\text{area of inner rectangle} = 6 \times 11 = 66 \text{ m}^2$ $\text{area of the path} = 150 - 66 = 84 \text{ m}^2$</p>	<p>M1 A1 M1 A1 M1 B1A1 M1 B1 A1</p>

19a)	i. $x + 4 + x + 3 = 30$ $2x = 23$ $x = 11\frac{1}{2}$ ii. $4(x - 2) - 3(3 - x) = 6(x - 2)$ $4x - 8 - 9 + 3x = 6x - 12$ $7x - 6x = 12 + 17$ $x = 5$	M1 A1 M1 B1 A1
b)	$(3s + 2b = 840) \times 4$ $(4s + 5b = 1680) \times 3$ $12s + 8b = 3360$ $12s + 15b = 5040 -$ $-7b = -1680$ $b = sh. 240$ $3s + 480 = 840$ $s = sh. 120$ Skirt = Shs.120 Blouse = Shs 240	B1 for both eqtns M1 for solving A1 for the prices
c)	$x = 350 - 2y$ $2(350 - 2y) + 3y = 600$ $700 - y = 600$ $y = 100$ $x = 350 - 2(100)$ $x = 150$ $x = 150 \text{ and } y = 100$	M1 A1
20	a) Before reduction Cattle = $\frac{6}{11} \times 1452 = 792$ Goats = $\frac{2}{11} \times 1452 = 264$ Sheep = $\frac{3}{11} \times 1452 = 396$ After reduction Cattle = $\frac{3}{4} \times 792 = 594$ Goats = $\frac{1}{2} \times 264 = 132$ Sheep = $\frac{2}{3} \times 396 = 264$ Total = $594 + 132 + 264 = 990$ animals	M1 M1 A1
	b) Selling price = $\frac{140}{100} \times 3800 = Ksh. 5320$ Profit = $5320 - 3800 = Sh. 1520$ Commission = $0.1 \times 1520 = Sh. 152$	M1 M1 A1

	<p>c) $\frac{2}{5} = \frac{8}{x}$ $x = \frac{8 \times 5}{2} = 20$</p> <p>d) Change = $800 - 1400 = -600$ Percentage change = $\frac{-600}{1400} \times 100 = -42.86\%$ The change is a decrease.</p>	<p>M1</p> <p>A1</p> <p>M1</p> <p>A1</p>
<p>21</p>	<p>a)</p> <p>b) (i) $6.9\text{cm}, \pm 0.1$ $50 \times 6.9 = 345\text{km}$ Bearing 247° (ii) $ST = 7.9 \times 50 = 395\text{km} \pm 5$ (iii) $YT = 12.9 \times 50 = 645\text{km} \pm 5$</p>	<p>B1 for points labeled T,S,Y and C B2 the angles B1 for completing the diagram B1 for labeling the units</p> <p>B1</p> <p>A1</p> <p>B1</p> <p>A1</p> <p>A1</p>