**ANESTAR VICTORY BOYS**

**MATHEMATICS FORM 2 APRIL HOLIDAY ASSIGNMENT 2021**

1. ­­­­­­Without using mathematical tables or calculators, evaluate: (3mks)

$$\frac{0.38×0.23×2.7}{0.114×0.0575}$$

1. Without using a calculator, evaluate: (3mks)

 $\frac{2\frac{1}{2}-1\frac{1}{5} of 2}{\frac{1}{4}-(-\frac{1}{4})^{3}}$

1. Determine the equation of the line through the point A(5,3) and parallel to the line $y=2x+3$ (3mks)
2. Given that $\left[\frac{3-4m}{m}=\frac{2-9}{m}\right]$, find the value of m. (3mks)
3. The table below shows speeds of vehicles measured to the nearest 10km/h as they passed a certain point

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Speed (km/h)** | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 |
| **Frequency** | 1 | 4 | 9 | 14 | 38 | 47 | 51 | 32 | 4 |

1. Prepare a frequency distribution table for the above information (4mks)
2. Calculate the mean speed of the vehicles. (2mks)
3. State the modal speed (1mk)
4. Calculate the median speed (3mk)
5. A container is in the form of a frustum of a right pyramid 4 m square at the bottom, 2.5m square at the top and 3m deep. Calculate the capacity of the container. 4mks)
6. The results of a survey are as shown in the field book below

|  |  |  |
| --- | --- | --- |
|  | **Y** |  |
|  | 250 |  |
|  | 240 | 70D |
| C80 | 170 |  |
|  | 70 | 60B |
| A60 | 50 |  |
|  | **X** |  |

 If all the measurements are in metres, calculate the area of the field in:

1. Using a suitable scale, draw the map to show the survey area (4mks)
2. m2 (4mks)
3. ha (2mks)
4. A solid metal cone has a diameter of 14cm and a height of 24cm. calculate the surface area of the cone. (3mks)
5. The length of 40 athletes in a country athletics competition were as shown in the table below:

|  |  |
| --- | --- |
| **Height (cm)** | **Frequency (f)** |
| 150-159 | 2 |
| 160-169 | 8 |
| 170-179 | 10 |
| 180-189 | Y |
| 190-199 | 6 |
| 200-209 | 2 |

1. Find the value of y. (2mks)
2. State the modal class (1mk)
3. Calculate the mean height of the athletes (4mks)
4. Calculate the median height of the athletes (3mks)
5. Draw a histogram to represent the information shown above (3mks)
6. A line L passes through points (-2, 3) and (-1, a6). It is perpendicular to a line that passes through point (-1, 6).
	1. Find the equation of L. (2mks)
	2. Find the equation of p in the form y=mx+c. (2mks)
	3. Another line Q is parallel to L and passes through point (1,2). Find the equation of Q. (3mks)
	4. Find the point of intersection of the lines P and Q. (3mks)
7. A right pyramid has a square base of 8cm and a slant height of 20cm. A smaller pyramid is cut of such that a frustum is formed. If the slant height of the cut-off pyramid is 10cm,
	1. Find the length of the square base of the smaller pyramid. (2mks)
	2. Calculate to 2 decimal places
		1. The length of the diagonal of the base of the smaller pyramid (2mks)
		2. The perpendicular height of the smaller pyramid (2mks)
	3. Find the volume of the frustum formed (correct to 2 decimal places) (4mks)
8. A bus left Nairobi at 6.00 a.m. and travelled towards Kericho at an average speed of 100km/h. at 6.30 a.m., a van left Kericho and travelled towards Nairobi to receive the bus with a number of people moving at an average speed of 125km/h. given that the distance between Nairobi and Kericho is 500km, calculate:
	1. The time the two vehicles met (4mks)
	2. On meeting the bus proceeded with its journey but the van had a break of 30 minutes before proceeding for Kericho. Calculate:
		1. The time the bus arrived at Kericho (3mks)
		2. The time the van arrived at Kericho (3mks)
9. A cone of radius 5cm has a curved surface of area of 109.9cm2. Calculate the volume of the cone. (4mks)
10. Three towns P, Q, and R are such that Q is 150km from P on a bearing of 0430. The bearing of R from P is 1330 and the bearing of R from Q is 1600. Calculate the distance of R from P, Q from R and the bearing of P from R. (4mks)
11. The ratio of the area of two similar rooms is$ \frac{4}{25}$.
	1. Find the area of the bigger room if the area of the smaller room is 8m2. (2mks)
	2. Find the ratio of their lengths (2mks)
	3. If the length of the larger room is 10 m, find the length of the smaller one. (2mks)
12. Show the region represented by

$$2x+y>3$$

 $x-y\leq 4$

 $y\leq 3$ (4mks)

###END###