

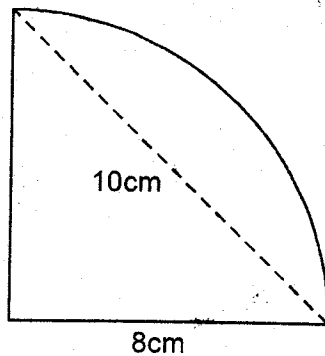
FRONTRUNNER 007

FRONTRUNNER EXAM STANDARD EIGHT 2021 MATHEMATICS

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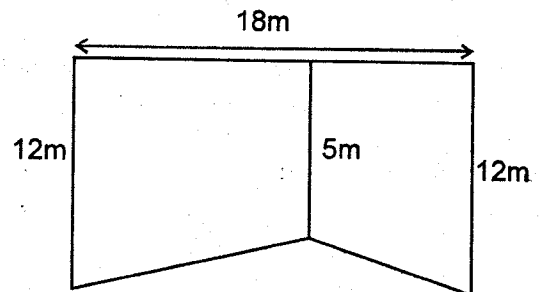
Time: 2 hours

- Write ten million, ten thousand and eleven in figures.
A. 10100011 B. 10010110
C. 1010011 D. 10010011
- What is the value of:
 $\left(\frac{2}{3}\right)^2 + \sqrt{\frac{25}{49}}$
A. $1\frac{8}{21}$ B. $1\frac{16}{42}$
C. $1\frac{10}{63}$ D. 12
- What is the next number in the pattern below:
2.3, 3.1, 3.9, 4.7, _____
A. 5.5 B. 5.1
C. 4.9 D. 5.3
- Round off 7648982 to the nearest ten thousand.
A. 7640000 B. 7650000
C. 7600000 D. 770000
- The figure below is a plot of land bounded by two straight edges and a semi-circle of diameter 10cm



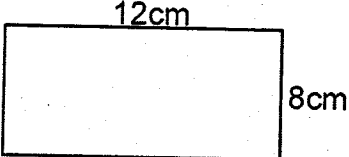
- What is twice its perimeter? ($\pi=3.14$)
A. 47.4cm B. 59.4cm
C. 23.7cm D. 29.7cm
- Tom has b bananas and Mary has four times as many bananas as Tom. Half of all the bananas is 35. Write an equation to represent this information.
A. $5b = 70$ B. $2b + 4b = 35$
C. $4b + b = 35$ D. $b + \frac{1}{4}b = 35$

- A tank whose capacity is $6\frac{1}{2}$ litres is $\frac{1}{2}$ full of water. After a half litre of water was added, how many more litres are needed to fill the tank?
A. $3\frac{3}{4}$ B. $2\frac{3}{4}$
C. $\frac{1}{2}$ D. $3\frac{1}{4}$
- Using a pair of compasses and a ruler only, construct a triangle ABC in which $AB = 7\text{cm}$, $BC = 8\text{cm}$ and $AC = 5\text{cm}$. Draw a circle whose circumference touches AB , BC and AC of the triangle. What is twice its radius?
A. 1.7cm B. 3.4cm
C. 4cm D. 8cm
- Twelve pupils obtained the following marks in test: 4, 4, 6, 8, 9, 6, 9, 6, 7, 10, 3, 7. By how much is the median mark more than the modal mark?
A. 1.5 B. 7.5
C. 6 D. 0.5
- The figure below shows Otieno's plot of land.



- Calculate its area in hectares.
A. 153 B. 306
C. 0.0153 D. 0.0306
- What is the total value of digit 7 in the product of 0.244 and 0.54?
A. Ten thousandths B. 0.7
C. 0.0007 D. Tenths
 - George earns a basic salary of sh.4000 per month. He is also paid a commission of 5% on goods he sells above sh.20000. In the month of February, he received a total of sh.6925. What was the value of the goods sold?
A. sh.58500 B. sh.3925
C. sh.38500 D. sh.78500

13. What must be multiplied by 0.04 to get 40?
- A. 1000 B. $\frac{1}{1000}$
 C. 100 D. 10000
14. By how many times is the L.C.M of 36, 48 and 54 greater than their G.C.D?
- A. 72 B. 432
 C. 426 D. 2592
15. A rectangular plot measuring 50m by 12.5m has the same area as another plot which is square in shape. The square plot is fenced using 4 strands of wire. What is the total length of the wire used?
- A. 50 m B. 400m
 C. 100m D. 500m
16. Arrange the fractions below from the smallest to the largest.
- $\frac{2}{3}, \frac{1}{2}, \frac{2}{5}, \frac{4}{9}, \frac{3}{7}$
- A. $\frac{2}{3}, \frac{1}{2}, \frac{4}{9}, \frac{3}{7}, \frac{2}{5}$ B. $\frac{2}{5}, \frac{3}{7}, \frac{1}{2}, \frac{4}{9}, \frac{2}{3}$
 C. $\frac{2}{3}, \frac{1}{2}, \frac{4}{9}, \frac{2}{5}, \frac{3}{7}$ D. $\frac{2}{5}, \frac{3}{7}, \frac{4}{9}, \frac{1}{2}, \frac{2}{3}$
17. John bought the following items from a supermarket:
- 3kg sugar @sh.45
 2packets of salt @sh.12
 2 loaves of bread @sh.40
 ½kg fat @sh.100 per kg
 2packets of tea leaves for sh.30
 If he paid using 2-200shilling notes, what balance did he get?
- A. sh.319 B. sh.349
 C. sh.81 D. sh.57
18. What is the value of $29 \div 7$ correct to 3 decimal places?
- A. 4.143 B. 0.242
 C. 0.241 D. 4.142
19. The amount of water in a tank decreases by 10% of the water in the tank everyday. If the amount of water in the tank at the end of the 3rd day was 72900L. What was the amount of water at the beginning of the 1st day?
- A. 81000L B. 100000L
 C. 90000L D. 104142.857L
20. Three girls Shamsa, Emah and Shish weighed themselves. Shamsa weighed 57.3kg, Emah was 1.7kg lighter than Shamsa and was 3.8kg heavier than Shish. What was their total mass?
- A. 164.7kg B. 62.8kg
 C. 172.3kg D. 59.4kg

21. The volume of a cylindrical tank whose height is 4cm is 154cm^3 . What is its diameter?
- A. 3.5cm B. 12cm
 C. 7cm D. 24cm
22. Using a pair of compasses, a ruler and protractor, construct quadrilateral ABCD in which line $AB=6\text{cm}$, $BC=4\text{cm}$, $AD=6\text{cm}$. Angle $ABC=120^\circ$ and $BAD=90^\circ$. Join D to C. Drop a perpendicular line from point B to meet line DC at K. What is the length of DK?
- A. 6.5cm B. 1.9cm
 C. 7.5cm D. 1.4cm
23. The marked price of a radio was sh.5000. Patrick was given a discount of 15% when buying it. He then sold it making a 20% profit. For how much did he sell the radio?
- A. sh.5100 B. sh.6000
 C. sh.5250 D. sh.4250
24. What is twice the value of?
- $24 \div 3 + 4 \times 5 - 8 \div 4 \times 10 + 1$
- A. 9 B. 581
 C. 41 D. 18
25. What is the value of:
- $\frac{2b(3a^2 - 4c)}{d + 4c}$
- when $a = 4$, $a - 1 = b$, $c = \frac{1}{2}a$ and $d = a + b$
- A. 5 B. 16
 C. $6\frac{2}{5}$ D. $54\frac{2}{5}$
26. The diagram below shows a plot of land drawn to a scale of 1:100000
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- What is the actual area of the plot in hectares?
- A. 960ha B. 9600ha
 C. 200ha D. 2ha
27. Kibe borrowed sh.50000 from a bank that charged compound interest at the rate of 18% pa. How much did he pay back after 24months?
- A. sh.19620 B. sh.216000
 C. sh.68000 D. sh.69620
28. In a school $\frac{3}{5}$ of the pupils are girls. On a day when $\frac{1}{4}$ of the girls were absent, 45 girls were present. How many pupils are there in the school when all are pupils are present?
- A. 60 B. 15
 C. 100 D. 765

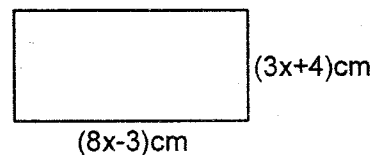
29. Mercy walked from the market to her home at an average speed of 5km/h and took 2h 24min. She returned to the market at an average speed of 4.5km/h. How long did she take to travel to her home and back?
 A. 5h 4 min B. 2h 40min
 C. 4h 36min D. 5h 20min
30. A clock loses 10 seconds every hour. If it was set right on Monday at 6.00 am, what time would it show on Friday the same week when the correct time is 6.00pm?
 A. 5.44pm B. 6.18pm
 C. 5.42pm D. 5.45am
31. A school bought a gas cooker on hire purchase terms. It paid a deposit of sh.5000 and 22 equal monthly instalments of sh.2500 each. If the cash price of the gas cooker was three quarters that of the hire purchase price, what was the cash price?
 A. sh.55000 B. sh.41250
 C. sh.60000 D. sh.45000
32. The area of a right angled triangular plot is 6ha. If one of its shorter sides is 400m, what is the length of its longest side?
 A. 300m B. 500m
 C. 150m D. 1200m
33. The following are properties of quadrilaterals:
 (i) All sides are equal.
 (ii) Diagonals are equal.
 (iii) Diagonals bisect each other at right angles.
 (iv) Diagonals bisect corner angles.
 (v) Opposite angles are equal.
 Which of the above properties are of a rhombus?
 A. (i), (ii), (iii), (iv)
 B. (ii), (iii), (v), (iv)
 C. (ii), (iii), (iv), (v)
 D. (i), (iii), (iv), (v)
34. Mokeira made 25% profit after selling a dress for sh.500 and 20% loss after selling a pair of shoes for sh.100. What was the total cost of buying the dress and the pair of shoes?
 A. sh.600 B. sh.705
 C. sh.125 D. sh. 525
35. What is half the value of x in the equation below $\frac{x-1}{2} + \frac{3x+7}{8} = 3$
 A. 3 B. 1.5
 C. 5 D. 2.5

36. Below is a bus timetable from town J to town N.

	Arrival time	Departure time
J	_____	7.00pm
K	9.30pm	10.00pm
L	11.15pm	11.30pm
M	12.15am	12.25am
N	1.50am	_____

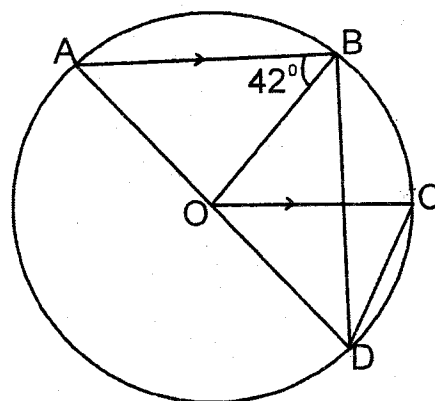
How long did the bus take to travel from town K to town M?

- A. 2¼hrs B. $2\frac{11}{12}$ hrs
 C. 2hr 45min D. 2hr 25min
37. A shopkeeper packed 3 tonnes of sugar into 100g, 200g and 500g packets. The 100g packets were 2000 and there were equal number of 200g and 500g packets. How many packets were packed altogether?
 A. 10000 B. 8000
 C. 6000 D. 4000
38. The figure below shows a rectangle. Its length is twice its width.



What is the length of its width?

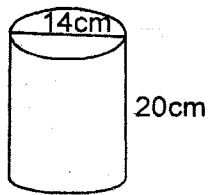
- A. 41cm B. 49cm
 C. 20.5cm D. 24.5cm
39. In the figure below, O is the centre of the circle. AB is parallel to OC and angle ABO=42°.



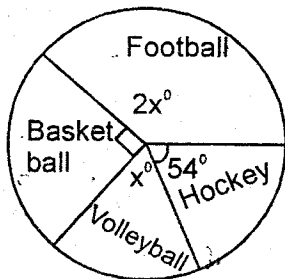
What is the size of angle OCD?

- A. 69° B. 96°
 C. 90° D. 42°

40. The cylindrical container below was cut along its diameter.

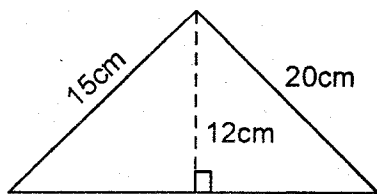


- Calculate the total surface area of each part.
- A. 1188cm^2 B. 594cm^2
 C. 517cm^2 D. 3080cm^2
41. In a school competition, 5 points are awarded for each game won and 3 points are deducted for each game lost. If a pupil attempted 20 games and got a total of 52 points how many games did he win?
- A. 6 B. 5
 C. 15 D. 14
42. The temperature of ice was 25°C below the freezing point. John heated it and the temperature rose at the rate of 8°C per minute for 9 minutes and later was cooled at the rate of 5°C per minute. What was the final reading on the thermometer if a total of 15 minutes was taken for both heating and cooling?
- A. 67°C B. -3°C
 C. 17°C D. 22°C
43. The pie chart below shows the favourite games chosen by pupils in a school.



- If 144 pupils chose volleyball, what was the total number of children in the school?
- A. 630 B. 360
 C. 720 D. 540

44. Find the area of the figure below



- A. 150cm^2 B. 108cm^2
 C. 192cm^2 D. 96cm^2

45. John visited his uncle on 3rd February year 2012 in the morning. He stayed with his uncle and went back to his home in the morning of 18th April the same year. How many nights did he spend at his uncle's place?

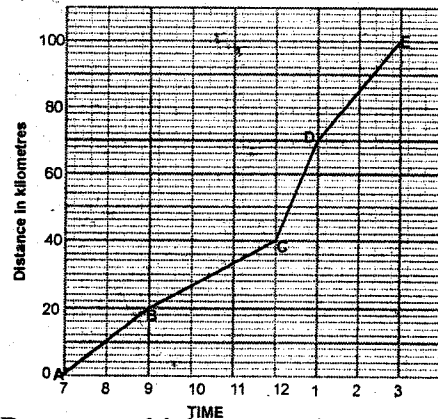
- A. 76 B. 73
 C. 74 D. 75
46. Three taps were left running at the same time. Tap A alone can fill the tank in 3 minutes, tap B can fill the same tank alone in 5 min and Tap C can empty the same tank alone in 6 minutes. What fraction of water was in the tank in 2 minutes if all the taps started running at the same time?

- A. $\frac{11}{30}$ B. $\frac{11}{15}$
 C. $2\frac{8}{11}$ D. $1\frac{4}{11}$
47. Otieno, an athlete took 15 seconds to run 100 metres. What was his speed in kilometres per hour?

- A. $2\frac{8}{12}$ B. 24
 C. 20 D. $1\frac{23}{27}$
48. The ratio of cows to goats in a farm is 3:4 respectively and that of goats to pigs is 6:1 respectively. If there were 92 animals altogether, how many cows were there?

- A. 36 B. 48 C. 69 D. 8
49. A rectangular metal tank is 2.5 long, 2m wide and 80cm deep. Find its capacity in litres when half full.

- A. 40000 B. 4000
 C. 2000 D. 20
50. The graph below shows the distance covered by a motorist between various stations.



- Between which two stations was the speed highest?
- A. B and C B. A and B
 C. C and D D. D and E