



# HIGH AIMERS SERIES STANDARD EIGHT - 2022

Time: 2 Hours

## MATHEMATICS

READ THESE INSTRUCTIONS CAREFULLY.

1. You have been given this question booklet and a separate answer sheet. The question booklet contains 50 questions.
2. Do any necessary rough work in this booklet.
3. When you have chosen your answer, mark it on the ANSWER SHEET, not in the question paper.

HOW TO USE THE ANSWER SHEET

4. Use an ordinary pencil only.
5. Make sure that you have written on the answer sheet.

YOUR INDEX NUMBER  
YOUR NAME  
NAME OF YOUR SCHOOL

6. By drawing a dark line inside the correct box, mark your full index number (i.e. school code Number and the three-figure candidate's number) on the top of the answer sheet.
7. Do not make any marks outside the boxes.
8. Keep your answer sheet as clean as possible.
9. For each questions 1-50 four answers are given. The answers are lettered A, B, C, D. In each case Only One of the four answers is correct. Choose the correct answer.
10. On the answer sheet show the correct answer by drawing a dark line inside the box in which the letter you have chosen is written.

**Example**

**In the question Booklet:**

24. Work out: square root of 81  
A. 9  
B. 4.5  
C. 21  
D. 3

The correct answer is D(3)

On the answer sheet:

4. [A] [B] [C] [D]    14. [A] [B] [C] [D]    24. [A] [B] [C] [D]    34. [A] [B] [C] [D]

In the set boxes numbered 24, the box with letter D printed in it is marked.

11. Your dark line Must be within the box. Make your line as dark as possible.
12. For each question **Only One** box is to be marked in each set of four boxes.

**Candidates should check the question papers to ensure that all questions are printed.**

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TURN OVER

1. What is 15015000.14 written in words?
  - A. Fifteen thousand, fifteen thousand and fourteen thousandth
  - B. Fifteen million and fifteen and fourteen thousandths
  - C. Fifteen million, fifteen thousand and fourteen hundredths
  - D. Fifteen millions fifteen thousands and fourteen thousandths
2. What is the value of,  
 $45 + 3(8 - 2^2) - 7 \times 6 \div 3$ 
  - A. 43
  - B. 178
  - C. 51
  - D. 49
3. A seminar took 1 hour and 35 minutes. It ended at 1800 hours. At what time did it start?
  - A. 7.35am
  - B. 4.25am
  - C. 7.35pm
  - D. 4.25pm
4. What is 759.968 rounded off to the nearest tenth?
  - A. 760
  - B. 759.9
  - C. 759.97
  - D. 760.0
5. What is the total value of digit 9 in;  
 $3.45 \times 0.27 \times 0.3$ 
  - A.  $\frac{9}{10}$
  - B.  $\frac{9}{100}$
  - C.  $\frac{9}{1000}$
  - D.  $\frac{9}{10000}$

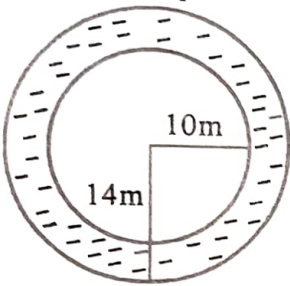
6. What is the value of p in the equation below?  
 $\frac{p}{3} + \frac{1}{2}(p + 1) = 5$ 
  - A.  $\frac{2}{5}$
  - B.  $5\frac{2}{5}$
  - C.  $5\frac{4}{5}$
  - D.  $6\frac{3}{5}$
7. What is the simplified form of the ratio;  
 $6(\frac{1}{3} - \frac{1}{4}) : (\frac{1}{2} + \frac{1}{3})$ 
  - A. 3:5
  - B. 5:3
  - C. 6:10
  - D. 21:10
8. Mwendu bought the following items from shop;
  - 3kg of tomatoes @ sh.45*
  - 2 - 2kg packets of flour for sh.180*
  - A bar of soap for sh.185*
  - 1 $\frac{1}{2}$ kg of meat @ sh.280*
 She paid for the items using 2-sh.500 notes.  
 How much balance did she receive?
  - A. Sh.80
  - B. Sh.145
  - C. Sh.150
  - D. Sh.185
9. The area of a square plot is 2704m<sup>2</sup>. It is fenced using posts placed 4m apart. How many posts will be needed?
  - A. 53
  - B. 52
  - C. 208
  - D. 832

10. What is the next number in the pattern?

3, 10, 5, 12, 7, 14, 9, 16, \_\_\_\_\_

- A. 11
- B. 18
- C. 21
- D. 23

11. The figure below represents a fishing pond surrounded by a path round it. Calculate the area of the path.



- A.  $302\text{m}^2$
- B.  $616\text{m}^2$
- C.  $314\text{m}^2$
- D.  $308\text{m}^2$

12. Which of the following statement is correct?

- A. 0.72 is greater than  $\frac{8}{11}$
- B. 0.72 is equal to  $\frac{8}{11}$
- C.  $\frac{8}{11}$  is less than 0.72
- D.  $\frac{8}{11}$  is greater than 0.72

13. Mohamed bought a watch for sh.8500. He then sold it for sh.9639 after giving a discount of 16%. What percentage profit would he have made if no discount was given?

- A.  $13\frac{2}{5}\%$
- B.  $9\frac{25}{27}\%$
- C. 35%
- D. 20%

14. A factory packs water in half litre, one litre, two litre and 5 litre bottles. On a certain day, the factory packed 20840 bottles of water. Out of these 8120 were half litre bottles and 3960 were two litre bottles. One litre bottles were 2000 more than two litre bottles. The rest were five litre bottles. How many 5 litre bottles were there?

- A. 2800
- B. 6760
- C. 6800
- D. 18040

15. What is the value of;

$$\frac{3}{4} \text{ of } 5\frac{1}{3} + 6\frac{2}{5} \div 1\frac{1}{3} - 1\frac{1}{5}$$

- A.  $11\frac{1}{3}$
- B.  $7\frac{3}{5}$
- C.  $6\frac{7}{10}$
- D.  $6\frac{3}{5}$

16. In the farm the total number of animals were 210. Out of these, there were 50 cows, 40 goats, 20 sheep, 30 chicken and the rest were pigs. If a pie-chart was drawn, what angle would represent pigs?

- A.  $70^\circ$
- B.  $120^\circ$
- C.  $90^\circ$
- D.  $140^\circ$

17. Three bells rings after 18min, 24min and 36min respectively. The bells ring together after how many minutes?

- A. 78min
- B. 72min

- C. 26min  
D. 6min
18. In a football match there were 150 people. Out of these 0.14 were men, 0.2 were women and the rest were children. How many more children than women were there?
- A. 69  
B. 78  
C. 99  
D. 129
19. Construct triangle JKL in which line JK = 8cm, line JL = 7cm and  $\angle KJL = 55^\circ$ . Draw a circle touching three vertices of the triangle. What is the diameter of the circle?
- A. 4.3cm  
B. 8cm  
C. 8.5cm  
D. 9cm
20. A cylindrical solid has a circumference of 132cm and height of 30cm. What is the surface area of the solid? ( $\pi = \frac{22}{7}$ )
- A.  $6732\text{cm}^2$   
B.  $5346\text{cm}^2$   
C.  $3960\text{cm}^2$   
D.  $2772\text{cm}^2$
21. Otieno had sh.4 more than Njuguna. Njuguna had sh.y and Juma had one third of what Otieno had. They had a total of sh.300. Which of the following equations correctly represents the information given?

- A.  $7y + 16 = 300$   
B.  $7y - 16 = 300$   
C.  $7y + 12 = 300$   
D.  $3y + 16 = 300$
22. A sales girl is paid a basic salary of sh.12000 and certain commission on sales she makes above sh.20000. In the month of June her total earnings were sh.20000 and the total sales were sh.60000. Calculate the percentage commission?
- A. 10%  
B. 20%  
C.  $13\frac{1}{3}\%$   
D. 30%
23. The length of a rectangular farm is 16m. Each of the diagonals is 20m. What is the perimeter of the farm?
- A. 56m  
B. 12m  
C. 24m  
D. 144m
24. Murangiri had a one thousand shillings note. He wanted to change it into smaller denominations of sh.200 notes, sh.100 notes and sh.50 notes. What is the least notes he got?
- A. 5 notes  
B. 7 notes  
C. 6 notes  
D. 16 notes

25. What is half the value of,

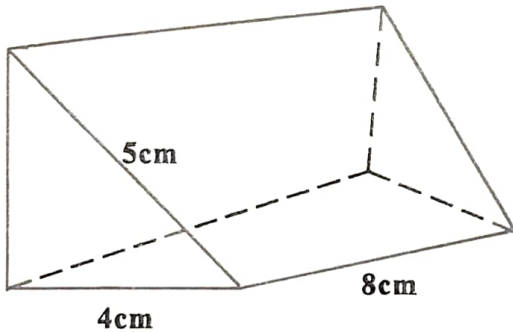
$$\frac{36(10 - 9.7) \times 40 \div 8}{1.2 + 1.5}$$

- A. 20
- B. 40
- C. 5
- D. 10

26. Bwana Safari travelled a distance of 120km at an average speed of 60km/h. He then travelled 160km at a speed of 40km/h. How long did he take to complete the whole journey?

- A.  $2\frac{2}{5}$ hrs
- B.  $3\frac{1}{9}$ hrs
- C. 4hrs
- D. 6hrs

27. The diagram below represents a wedge. What is the surface area in  $\text{cm}^2$ ?

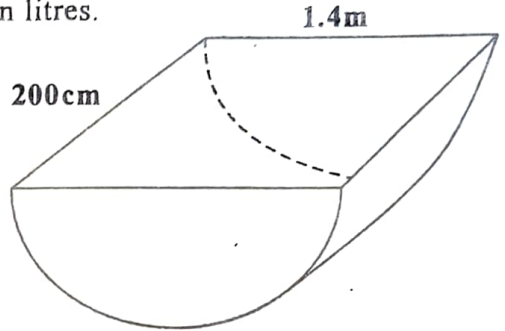


- A.  $48\text{cm}^2$
- B.  $108\text{cm}^2$
- C.  $76\text{cm}^2$
- D.  $68\text{cm}^2$

28. A tailor used  $\frac{3}{8}$  of the material to make school shorts,  $\frac{1}{4}$  to make shirts. He remained with 3.6m of the material. What was the total length of the material he had at the beginning?

- A. 9.6m
- B. 8m
- C. 28.8m
- D. 14.4m

29. The trough below was filled some water. Calculate the amount of water in the trough in litres.



- A. 3080L
- B. 6160L
- C. 7700L
- D. 1540L

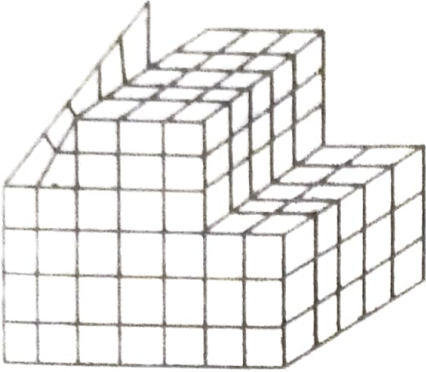
30. Maureen deposited sh.25000 in a financial institution that offered  $2\frac{1}{2}\%$  simple interest. How much money was in her account at the beginning of the third year?

- A. Sh.1250
- B. Sh.26250
- C. Sh.1875
- D. Sh.26875

31. There were 872 pupils at Malaba Primary School. Each pupil was given 2 - 2dl packet of milk. How many millilitres of milk were given out?

- A. 34.88
- B. 348.8
- C. 34880
- D. 348800

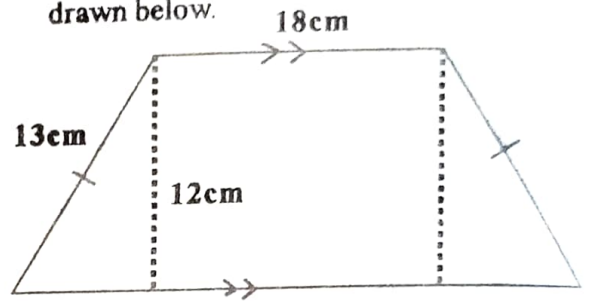
32. The diagram below represents a stack of cubes. How many cubes are used to make the stack?



- A. 160  
 B. 210  
 C. 140  
 D. 105
33. The scale used on a map reads 1:20000. What is the length of a line representing a road whose actual length is 6.4km?
- A. 3.2cm  
 B. 0.32cm  
 C. 320cm  
 D. 32cm
34. The length of the rectangle is represented by  $2(2x + 4)$ cm while the width is represented by  $\frac{1}{2}(4x - 8)$ cm. If the perimeter of the rectangle is 68cm, calculate its area?
- A.  $168\text{cm}^2$   
 B.  $336\text{cm}^2$   
 C.  $560\text{cm}^2$   
 D.  $324\text{cm}^2$
35. The hire purchase price of wardrobe is a deposit of sh.7500 and 1 year equal monthly instalments of shh.1800. The marked price

of the same wardrobe is sh.28000. A customer who buys it cash is given 10% discount. How much more is the hire purchase price than the cash price?

- A. Sh5200  
 B. Sh.3900  
 C. Sh.1100  
 D. Sh2100
36. Calculate the perimeter of the trapezium drawn below.



- A. 84cm  
 B. 72cm  
 C. 62cm  
 D. 74cm
37. Ouma woke up at 0615hr on Tuesday after sleeping for  $8\frac{1}{2}$ hrs. At what day and time had he slept in am/pm?
- A. Monday 9.45pm  
 B. Tuesday 9.45am  
 C. Monday 10.45pm  
 D. Tuesday 2145hrs
38. Nineteenth January 2012 was on Thursday. Which day of the week was 10th April the same year?
- A. Monday  
 B. Wednesday  
 C. Tuesday  
 D. Thursday

39. The marked price of a water pump was sh.36000. Kamami paid sh.30600. What was the percentage discount?
- A. 20%
  - B. 18%
  - C. 15%
  - D. 25%

40. What is the value of;

$$\frac{2x(Z^2 - 2^2)}{m}$$

when  $x = 2$ ,  $z = 3$  and  $m = x + 3$

- A. 5
- B. 20
- C. 16
- D. 4

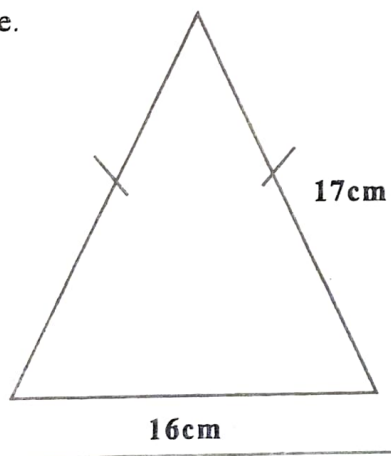
41. The table below shows the number of children per family in a certain estate.

No of families	2	3	4	5	6
No of children per family	7	4	5	2	3

What is the modal number of the children per family?

- A. 6
- B. 7
- C. 3
- D. 2

42. The figure below shows an isosceles triangle.



What is the area of the triangle?

- A.  $120\text{cm}^2$
- B.  $272\text{cm}^2$
- C.  $240\text{cm}^2$
- D.  $136\text{cm}^2$

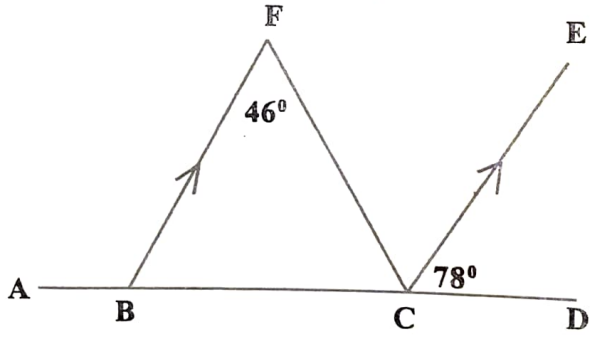
43. Eighteen people can complete a piece of work in twenty four days. How many more days will the work take if six people failed to work?

- A. 36
- B. 24
- C. 12
- D. 8

44. What is the difference between GCD and LCM of 24, 32 and 40?

- A. 8
- B. 480
- C. 472
- D. 488

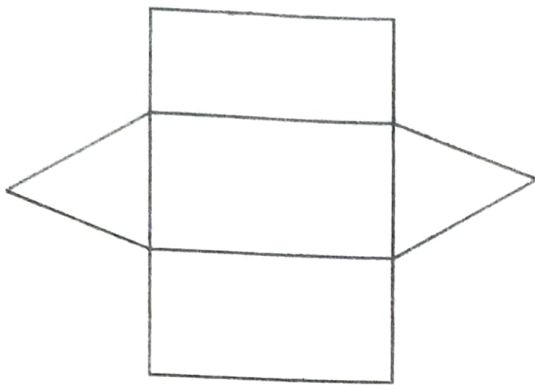
45. On the figure below line BF is parallel to line CE and angle DCE is  $78^\circ$  and angle BFC =  $46^\circ$ . Line ABCD is straight line.



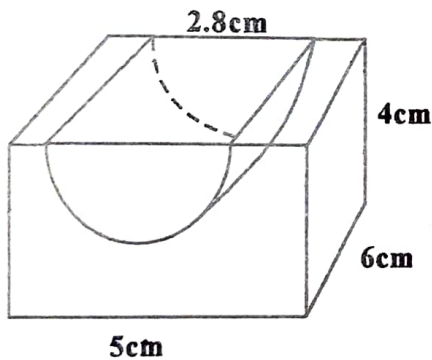
What is the size of angle FCB?

- A.  $56^\circ$
- B.  $78^\circ$
- C.  $46^\circ$
- D.  $64^\circ$

46. Below is a net of a solid. How many vertices are formed if the net is folded to form a solid?



- A. 5  
 B. 6  
 C. 9  
 D. 14
47. The diagram below represents a solid made up of a rectangular block from which half a cylinder of diameter 2.8cm has been removed.



What is the volume of the solid?

$(\pi = \frac{22}{7})$

- A.  $16.92\text{cm}^3$   
 B.  $27.84\text{cm}^3$   
 C.  $83.04\text{cm}^3$   
 D.  $101.52\text{cm}^3$

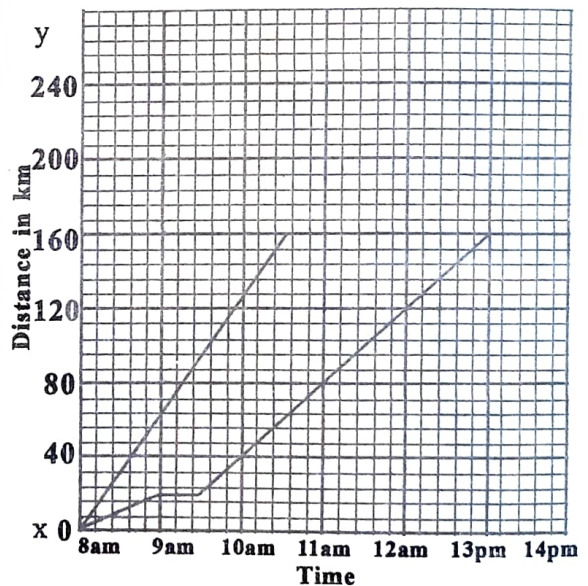
48. A mother is twice as old as her daughter which of the following expressions shows the sum of ages of the mother and daughter three years ago?

- A.  $3n$   
 B.  $3(n - 2)$   
 C.  $2(n - 3)$   
 D.  $2n - 3$

49. Skin lotion is packed in 125g containers. How many such containers are required to one tonne?

- A. 8  
 B. 80  
 C. 8000  
 D. 800

50. The graph below shows the journey followed by two motorists from X to Y.



How far apart were the two motorists  $2\frac{1}{2}$  hours after their departure?

- A. 50km  
 B. 20km  
 C. 30km  
 D. 25km