SIGNAL Publishers
Igniting thinking

STANDARD EIGHT

SIGNAL EXAMS 2020

DIGITAL EDITION
022

MATHEMATICS

Time: 2 hours

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 booklet.

HOW TO USE THE ANSWER SHEET

4. Use only an ordinary pencil.
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 numbered boxes mark your full Index Number (i.e. School Code Number and the three-figure Candidate's Number) in the grid near the top of the answer sheet.
7. Do not make any marks outside the boxes.
8. Keep your answer sheet as clean as possible and **DO NOT FOLD IT**.
9. For each of the questions 1 – 50 four answers are given. The answers are lettered A, B, C and D. In each case only **ONE** of the four answers is correct. Choose the correct answer.
10. On the answer sheet, the correct answer is to be shown by drawing a **dark line** inside the box in which the letter you have chosen is written.

Example:
In the question booklet:

11. What is the square root of **0.9216**?

A. 9.6
B. 84
C. 0.96
D. 0.84

The correct answer is **C** (**0.96**)

On the answer sheet:

1 [A] [B] [C] [D] **11** [A] [B] [C] [D] **21** [A] [B] [C] [D] **31** [A] [B] [C] [D] **41** [A] [B] [C] [D]

In the set of boxes numbered 11, the box with the letter **C** printed in it is marked.

11. Your **dark line MUST** be within the box.
12. For each question **ONLY ONE** box is to be marked in each set of four boxes.

This question paper consists of 8 printed pages

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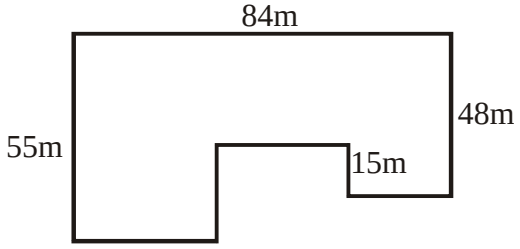
1. What is hundred million ten thousand and one hundredths written in symbols?
A. 100010001
B. 100001001.01
C. 100100010.1
D. 100010000.01

2. Which of the following numbers can be multiplied by 392 to give a perfect square?
A. 7
B. 8
C. 15
D. 3

3. What is the place value of digit **8** obtained after working out **5.27 ÷ 25**?
A. Ones
B. Eight thousandths
C. Ten thousandths
D. Hundredths.

4. Increase 1.2 tonnes by 24%.
A. 2.88t
B. 28.8t
C. 14.88t
D. 1.488t

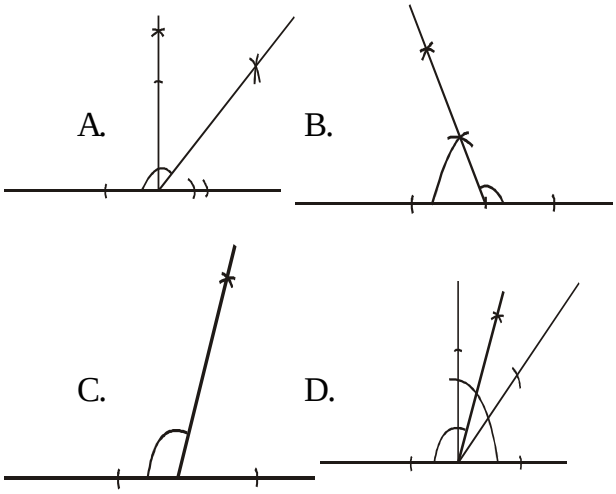
5. Find the distance round the figure below.



A. 202m
B. 308m
C. 301m
D. 286m

6. A square piece of paper of area $81cm^2$ was cut into sixteen equal small squares. Calculate the length of one small square.
A. $5\frac{1}{16}$cm
B. 9cm
C. 4cm
D. $2\frac{1}{4}$ cm

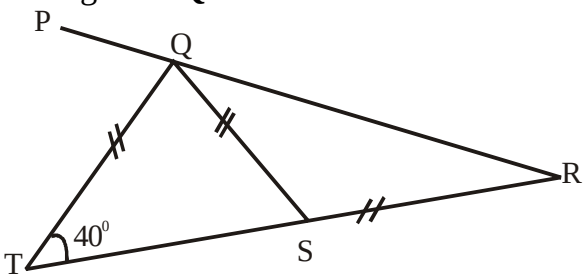
7. Which of the following shows the construction of an angle of 135^0?



8. A cylindrical water tank has a diameter of 56cm and a height of 3m. What is the volume of the tank in cm^3?
A. $7392cm^3$
B. $739200cm^3$
C. $29568cm^3$
D. $52800cm^3$

9. Which of the following statements about quadrilaterals is **not** true?
A. The diagonals of a rhombus are equal.
B. A trapezium has only one pair of parallel sides.
C. Opposite sides of a rectangle are equal and parallel.
D. The sum of interior angles in a square is 360^0.

10. In the figure below, **PQR** and **TSR** are straight lines. Line **QT** = **Q**S = **SR** and angle **RTQ** = 40^0.



What is the size of angle **PQT**?

A. 100^0

B. 40^0

C. 60^0

D. 140^0

11. Simplify:

0.5 x 1.25 ÷ 0.025 - 12 + 9

A. 22

B. 4

C. 25

D. 247

12. A salesman earns a basic salary of sh.7500 plus a $5\frac{1}{2}$% commision on goods sold above sh. 30000. In one month, he earned a total of sh. 11900. How much were the sales for that month?

A. Sh. 80000

B. Sh. 110000

C. Sh. 50000

D. Sh. 165000

13. ***The table below represents Makuhi's expenditure.***

Expenditure	Transport	Rent	Food	Savings
Money spent(**sh**)	6000	8000	7000	

The money spent on rent was represented by an angle of 96^0 on a pie chart.

What angle would represent the amount of money he saved?

A. 108^0

B. 72^0

C. 192^0

D. 84^0

14. Find the next number in the sequence below.

18, 22, 30, 46, 78, ___

A. 64

B. 270

C. 142

D. 114

15. The perimeter of the figure below is 1120 metres.

Find its area in Ares.

A. 75.9 Ares

B. 7.59Ares

C. 75900 Ares

D. 759 Ares

16. Arrange the fractions below in descending order.

$\frac{1}{6}, \frac{2}{3}, \frac{1}{2}, \frac{4}{15}, \frac{2}{5}$

A. $\frac{4}{15}, \frac{1}{6}, \frac{2}{5}, \frac{2}{3}, \frac{1}{2}$

B. $\frac{1}{2}, \frac{2}{5}, \frac{2}{3}, \frac{1}{6}, \frac{4}{15}$

C. $\frac{2}{3}, \frac{1}{2}, \frac{2}{5}, \frac{4}{15}, \frac{1}{6}$

D. $\frac{2}{3}, \frac{2}{5}, \frac{1}{2}, \frac{4}{15}, \frac{1}{6}$

17. The number of goats in a farm was **x**. The number of sheep was three times that of cows but 6 more than the goats. Which of the following expressions shows the total number of animals in the farm?

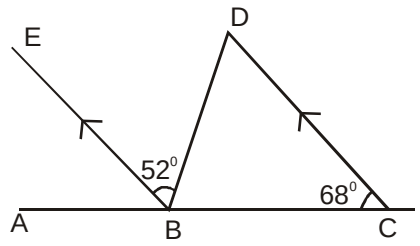
A. $2\frac{1}{3}x + 8$

B. $3x + 12$

C. $3x + 8$

D. $5x + 24$

18. In the figure below, line **EB** is parallel to line **DC**. **ABC** is a straight line. Angle **EBD** = 52^0 and angle **DCB** = 68^0.



What is the complement of angle **DBC**?

A. 60^0

B. 30^0

C. 12^0

D. 46^0

19. Construct triangle **XYZ** in which line **XY**= 8cm, line **XZ** = 7cm and angle **YXZ** = 100^0. What is the length of line **YZ**?

A. 9.7cm

B. 12.5cm

C. 11.5cm

D. 7.7cm

20. **Work out:** $\frac{0.32 \times 7.8 \times 0.28}{0.52 \times 21 \times 0.02}$

A. 3.2

B. 0.32

C. 32

D. 0.032

21. A trader had sh.18000 which she changed into equal number of sh.1000 and sh. 500 notes. How many notes did she have in total?

A. 12

B. 18

C. 36

D. 24

22. Simplify the inequality below.

$\frac{3}{4}x + 6 > x + 3$

A. $x > 3$

B. $x > 12$

C. $x < 3$

D. $x < 12$

23. Three bells ring at intervals of 12 minutes, 18 minutes and 24 minutes. If they rang together during the long break at 11:11am, at what time had they rang together again before the break?

A. 9:12am

B. 8:54am

C. 9:59am

D. 12:05pm

24. Nembo had two bags of rice weighing 48kg and 60kg respectively. He decided to pack the rice into smaller bags of equal mass. What is the greatest possible mass of each smaller bag obtained?

A. 54kg

B. 200kg

C. 240kg

D. 12kg

25. A bicycle wheel of diameter 28cm covered a distance of 1.32km. How many revolutions did it make?

A. 150

B. 1500

C. 3000

D.15000

26. What is **8754329** rounded off to the nearest thousand?

A. 8750000

B. 8754000

C. 8755000

D. 8700000

27. Find the value of **y** in;

$\frac{2}{3}(6y - 9) = 2(y - 1)$

A. 2

B. 3

C. 4

D. 8

28. Find the sum of all the prime numbers between 70 and 100.

A. 492

B. 571

C. 583

D. 682

29. By selling a television at sh. 2720, Masoko makes a 15% loss. For how much should she sell the television in order to make a 10% profit?

A. Sh. 3200

B. Sh. 2312

C. Sh. 408

D. Sh. 3520

30. Timo and Saimo shared sh. 9600 in the ratio $\frac{1}{2} : \frac{1}{3}$ respectively. How much did Saimo get?

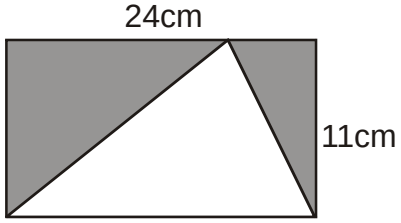
A. Sh. 5760

B. Sh. 3840

C. Sh. 3200

D. Sh. 4800

31. Calculate the area of the shaded part in the rectangle below.



A. 264cm^2

B. 132cm^2

C. 70cm^2

D. 528cm^2

32. Three pupils; Kacha, Zawadi and Chile shared some money such that Kacha got $\frac{2}{5}$ of the money, Zawadi got $\frac{3}{4}$ of the remainder and Chile got the rest. If Chile got sh. 360, how much money did they share altogether?

A. Sh. 2700

B. Sh. 7200

C. Sh. 2400

D. Sh. 1440

33. An empty carton weighs 300g. 28-300g textbooks and 10-100g exercise books were packed into the carton. What was the mass of the loaded carton in kilograms?

A. 8.7kg

B. 9.7kg

C. 8.4kg

D. 7.4kg

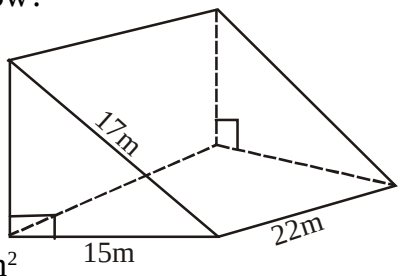
34. What is the product of the edges and vertices of an open rectangular prism?

A. 20
B. 96
C. 84
D. 60

35. Construct triangle **JKL** in which line **JK** = 8cm, **JL** = 6cm and angle **KJL**=70^0. Draw a circle touching the vertices of the triangle. What is its radius?

A. 4.3cm
B. 2.1cm
C. 8.6cm
D. 4.8cm

36. What is the total surface area of the solid below?



A. 2640m^2
B. 880m^2
C. 1000m^2
D. 940m^2

37. A road is represented on a map by a line 12.5cm long. If the scale used on the map is 1:100000, what is the actual length of the road in kilometres?

A. 125km
B. 12.5km
C. 1.25km
D. 1250km

38. **Evaluate**:

$$\frac{3}{4}\left(\frac{1}{2}+\frac{2}{5}\right)\div\frac{1}{3}-\frac{1}{5}\times\frac{3}{8}$$

A. $1\frac{1}{5}$
B. $1\frac{19}{20}$
C. $\frac{37}{40}$
D. $\frac{3}{20}$

39. Luta deposited sh. 12000 in a bank that paid a simple interest at the rate of 10% p.a. After some time, he withdrew all the money, a total of sh.16200. How long had the money stayed in the bank?

A. $3\frac{1}{2}$ years
B. 7 years
C. $\frac{1}{2}$ years
D. 2 years

40. In the year 2012, February 20th was on a Sunday. What day was March 6th the same year?

A. Wednesday
B. Sunday
C. Tuesday
D. Monday

41. A storybook with 30 pages has an average of 24 lines on each page. If each line has average of 8 words, how many words in total does the storybook have?

A. 5760
B. 720
C. 192
D. 728

42. Mtembei started her journey from town A to town C at 8:45am. She drove at an average speed of 70km/h. After travelling for 2 hours, her car had a puncture which took her 30 minutes to replace the tyre. She continued with the journey at an average speed of 90km/h. She arrived at 1315hrs. What distance did she cover?

A. 140km

B. 160km

C. 265km

D. 320km

43. Maneno bought the following items from a shop.

- *4- quarter litre packets of juice @ sh. 40*
- *2 loaves of bread at sh. 48.*
- *Three - 2kg packets of wheat flour@ sh. 118.*
- *1 $^{1}/_{2}$ kg of salt @ sh. 60.*
- *2kg of cooking fat for sh. 170*

If he was given a 10% discount on the total value of the goods he bought, how much balance did he get from sh. 1000 note?

A. Sh. 870

B. Sh. 217

C. Sh. 783

D. Sh. 130

44. Which of the following sets of measurements gives a right-angled triangle?

A. 9cm, 16cm, 25cm

B. 0.8cm, 1.5cm,1.7cm

C. 1.2cm, 2.4cm, 2.5cm

D. 6cm, 8cm, 12cm.

45. It took an athlete 12 seconds to cover 30m during a 100m race. What was his speed in km/h?

A. 9km/h

B. 18km/h

C. $3\ ^{1}/_{3}$km/h

D. $8\ ^{1}/_{3}$km/h

46. Amina attended a seminar that started at 9:40am. The morning session took 3hrs 15 mins before a $1^{1}/_{2}$ hrs lunch break. If the seminar ended at 5:30pm, how long was she away on that day??

A. 9 hrs 20 mins

B. 8 hrs 10 mins

C. 7hrs 50 mins

D. 3 hrs 50 mins

47. Simplify:

$3(4y + x) + 2(5y - 3x)$

A. $2y + 12x$

B. $2y - 12x$

C. $22y - 6x$

D. $22y - 3x$

48. In an election, three candidates Mboi, Shako and Hoho participated. Mboi got 5269 votes, Shako got 524 votes more than Hoho who got 243 votes less than Mboi. If 298 votes got spoilt, how many people voted?

A. 16386

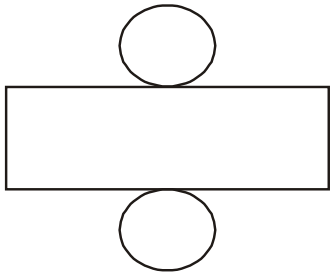
B. 15547

C. 16143

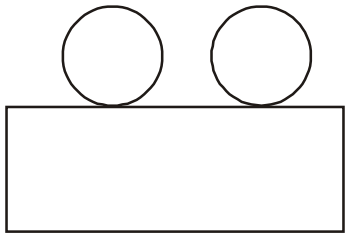
D. 15845

49. Which of the following nets can be folded to make a closed cylinder?

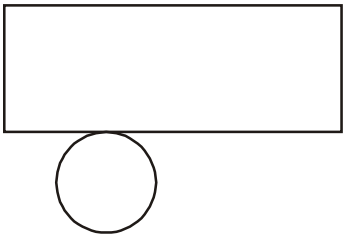
A.



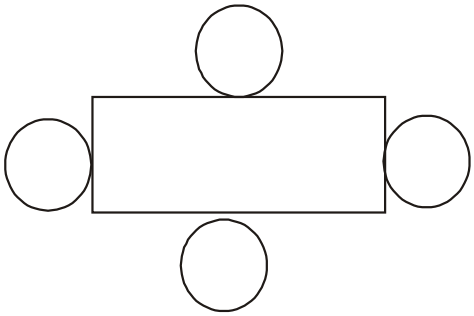
B.



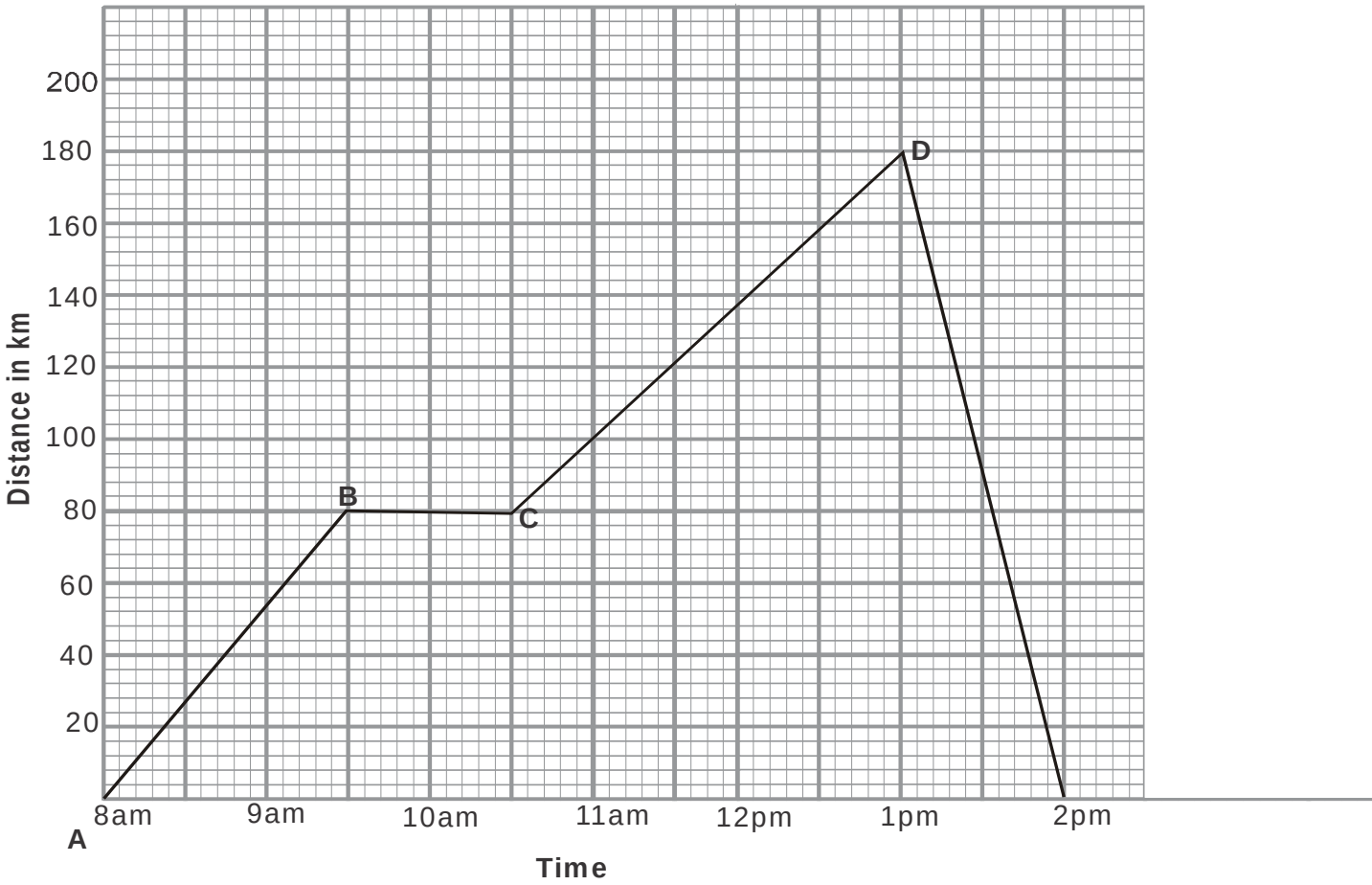
C.



D.



50. ***The graph below shows Kipchoge's journey from town A to town D and back.***



What was his average speed for the whole journey?

A. 64km/h

B. 180km/h

C. 36km/h

D. 60km/h