DOUBLE MERIT NATIONAL EXAMINATIONS

STANDARD 8 - YEAR 2021

MATHEMATICS

2ND MERIT **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 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 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 mar[illegible] 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, 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

34. Acylindrical tank has a diameter of $1.4m$ and a height of $3m$. What is the volume of the tank in m^3?

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

A. $7.36m^3$

B. $4.62m^3$

C. $18.48m^3$

D. $6.6m^3$

The correct answer is **B.**

34	[A]	[B]	[C]	[D]	35.	[A]	[B]	[C]	[D	36.	[A] [B] [C] [D]	37.	[A] [B] [C] [D]

In the set of boxes number 34 , the box with letter B 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.

Email: doublemeritenterprises@gmail.com

1. Which one of the folfowing is three million three hundred and three thousand and twenty three in symbols?
   A. 3303003
   B. 3033023
   C. 3303023
   D. 3303203

2. In the number 34203, what is the difference between the total values of digit 4 and 2?
   A. 4200
   B. 3980
   C. 3800
   D. 4000

3. What is the value of 5689.9995 rounded off to the nearest thousandths?
   A. 5689.0000
   B. 5689.999
   C. 569.000
   D. 5690.000

4. What is the value of
   $60 \times (528 \div 12) + 20 - 85$?
   A. 2640
   B. 3840
   C. 2575
   D. 3755

5. What is the value of $\frac{0.24 \times 0.36}{0.09 \times 0.008}$?
   A. 1.2
   B. 1200
   C. 12000
   D. 120

6. What is the product of the L.C.M and G.C.D of 12, 15 and 24?
   A. 270
   B. 180
   C. 360
   D. 120

7. Work out the value of $\left(2\frac{1}{2}\right)^2 - \sqrt{1\frac{7}{9}}$?
   A. $3\frac{11}{12}$
   B. $4\frac{11}{12}$
   C. $\frac{11}{12}$
   D. $\frac{1}{6}$

8. What is the next number in the pattern 4, 6, 9, 14, 21, _____?
   A. 35
   B. 32
   C. 30
   D. 29

9. What is the value of $\frac{2}{3}\left(2\frac{1}{4} \div \frac{5}{12}\right) + 1\frac{1}{2}$?
   A. $\frac{7}{8}$
   B. $3\frac{3}{5}$
   C. $4\frac{4}{7}$
   D. $5\frac{1}{10}$

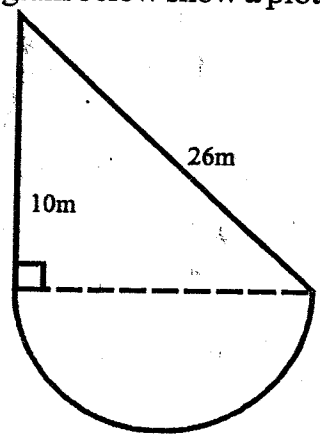
10. What is the value of y in the equation $\frac{y}{4} + \frac{y-2}{3} = 4$?
    A. $5\frac{5}{7}$
    B. 8
    C. $7\frac{1}{7}$
    D. 6

11. In the month of May the price of a phone was increased by 20% from *sh.* 6000. If in the following month the price was decreased by 20%, what was the new price of the phone?
A. *sh.* 6040
B. *sh.* 5760
C. *sh.* 6020
D. *sh.* 5480

12. A train left Kisumu town for Nairobi at 7.00*pm*. If the train took 9 *hours*, at what time in 12 *clock system* did it arrive in Nairobi?
A. 4.00 *am*
B. 3.00 *pm*
C. 4.00 *pm*
D. 3.00 *am*

13. A trader had 4.2 *tonnes* of tea leaves. He packed half of it into 250*g* packets, a third of the remainder into 500*g* packets and the rest into 1*kg* packets. How many packets did he obtain altogether?
A. 11200
B. 9800
C. 12400
D. 10500

14. The diagram below show a plot of land.

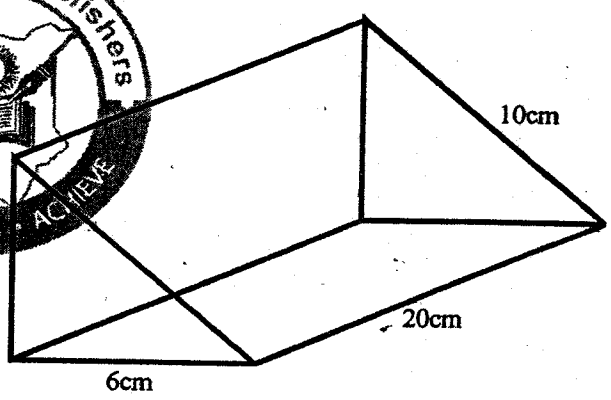


What is the area of the plot in *Ares*?
(Take $\pi = 3.14$)
A. 0.034608
B. 346.08
C. 4.6608
D. 3.4608

15. A lorry was packed with 150 cartons of salt. Each carton had 120 packets each weighing 500g. If each empty carton weighed 0.5kg, what was the total mass of load in *tonnes*?
A. 9.075*t*
B. 90.75*t*
C. 9075*t*
D. 0.9075*t*

16. A cylindrical water tank whose height is 0.4*m* and a diameter of 1.4*m* is half full of water. How many *litres* of water was in the tank?
(Take $\pi = \frac{22}{7}$)
A. 88*l*
B. 308*l*
C. 616*l*
D. 176*l*

17. What is the total surface area of the wooden block drawn below.



A. $528cm^2$
B. $420cm^2$
C. $328cm^2$
D. $600cm^2$

18. The cash price of a sofa set is *sh.* 40000. A lady bought the sofa set in hire purchase price by paying a deposit of 60% of cash price and eight equal monthly instalment of *sh.* 3500. How much more than the cash price did she pay?
A. *sh.* 24000
B. *sh.* 52000
C. *sh.* 28000
D. *sh.* 12000

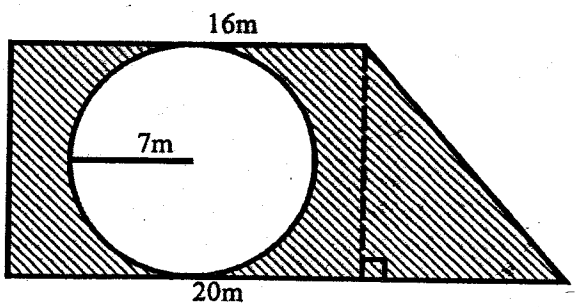
19. Draw triangle XYZ in which $XY = 7.5$cm, $YZ = 6$cm and angle $XYZ = 65°$. Construct a circle that touches the sides of the triangle. Measure the size of the radius?

A. 2.0*cm*
B. 4.6*cm*
C. 2.2*cm*
D. 4.0*cm*

20. A lady earns a commission on sales above *sh.* 100000. In a certain month she earned *sh.* 3600 after selling goods worth *sh.* 800000. What was the percentage commission earned?

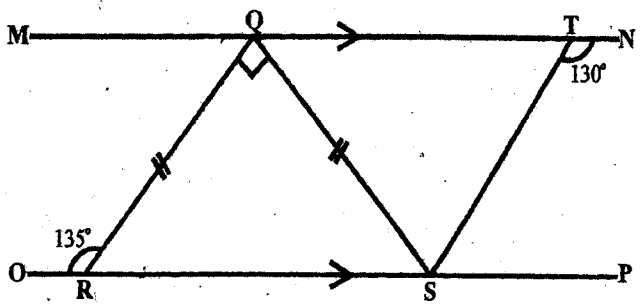
A. $5\frac{1}{7}\%$
B. 4%
C. $4\frac{1}{2}$
D. 36%

21. What is the area of the shaded part in the figure drawn below? (Take $\pi = \frac{22}{7}$)



A. $154m^2$
B. $252m^2$
C. $208m^2$
D. $98m^2$

22. In the figure shown below, MN is parallel to OP. Line $QR = QS$. Angle $ORQ = 135°$ and angle $STN = 130°$.



What is the size of angle QST?

A. 50°
B. 85°
C. 95°
D. 45°

23. What is the value of

$$\frac{4}{7}(28p+42q)+\frac{3}{4}(24p-12q)$$

A. $34p - 15q$
B. $34p + 33q$
C. $2p + 15q$
D. $34p + 15q$

24. A lady shared a piece of land to her three children. She gave $\frac{1}{3}$ of the land to her first born, $\frac{2}{5}$ of the remainder to second born and the rest to last born. If the last born got 2.4 *hectares* of the land, how many *hectares* of land did she have in total?

A. 9
B. 6
C. 4
D. 3.6

25. In a right-angled triangle the length of the two shorter sides measures 24*cm* and 7*cm* respectively. What is the length of the longest side of the triangle?

A. 31*cm*
B. 35*cm*
C. 25*cm*
D. 45*cm*

26. What is the value of $\frac{2Q^2 - S + R}{R - S}$, given that $Q = 4$, $R = 5$ and $S = 3$?
A. 37
B. 17
C. 9
D. 12

27. *The table below shows inland postal charges for sending letters.*

	Charges	
Letter weighs	shs.	Cts.
Not over 20g	21	00
Over 20g upto 50g	25	00
Over 50g upto 100g	28	00
Over 100g upto 250g	42	00
Over 250g upto 500g	70	00
Over 500g upto 1kg	135	00
Over 1kg upto 2kg	190	00

A man sent two letters weighing 147*g* and 1.25*kg*. How much money did he pay at the post office?
A. *sh.* 240
B. *sh.* 232
C. *sh.* 322
D. *sh.* 274

28. The mean mass of ten packets is 6.2*kg*. Eight of the packets weighs 8*kg*, 4*kg*, 5*kg*, 9*kg*, 7*kg*, 4*kg*, 6*kg* and 3*kg*. If the remaining two packets are such that one is greater than the other by 4*kg*, what is the median mass of the ten packets?
A. 4*kg*
B. 10*kg*
C. 6*kg*
D. 12*kg*

29. On a map of scale 1:10000 a triangular plot of land measures 7*cm* by 4*cm* by 5*cm*. What is the actual distance round the plot in kilometres?
A. 0.16*km*
B. 160*km*
C. 16*km*
D. 1.6*km*

30 A wheel covered a distance of 5.28*km* after making 2000 revolutions. What is the radius of the wheel in metres?
A. 0.42*m*
B. 0.21*m*
C. 84*m*
D. 0.84*m*

31. Wayne brought the following items from a shop
1½ litres of milk for sh. 90
3kg maize flour @ sh. 45
1.5litres of cooking oil @ sh. 110
2 bar soaps @ sh. 32
2 kg packet of sugar for sh. 160
If he paid using one thousand shilling note, how much balance did he receive?
A. *sh.* 620
B. *sh.* 220
C. *sh.* 386
D. *sh.* 614

32. A motorist covered 3*km* in every 2 minutes. How many *kilometres* will the motorist cover from 0818*hrs* to 0908*hrs*?
A. 1[illegible]0*km*
B. [illegible]*km*
C. [illegible]00*km*
D. 70*km*

33. A plot of land is in the shape of a quarter circle of diameter 28*m*. The plot was fenced by electing posts 2*m* apart. How many posts were used in total?
A. 11
B. 39
C. 25
D. 26

34. If 15 men can do a piece of work in 24 *hours*, how many more men are required to complete the same work in 10 *hours* working a the same rate?
A. 21
B. 36
C. 12
D. 60

35. Using a pair of compass and a ruler construct triangle QRS such that $QR = 5cm$, $QS = 6.5cm$ and angle $QRS = 75°$. Bisect angle QSR and let the angle bisector meet line QR at P. Measure the size of angle QSP?

A. 44°
B. 63°
C. 24°
D. 95°

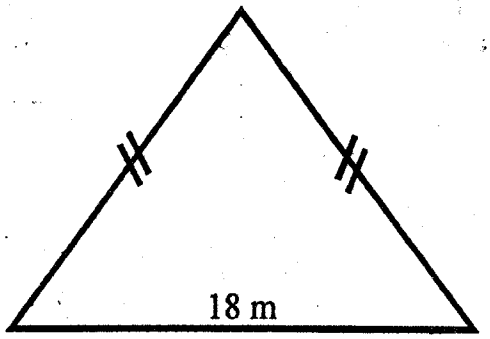
36. The table below shows distance in *kilometres* from Ngong to Kenyatta hospital.

Ngong			
10	Junction		
15	8	Prestige	
20	13	5	Kenyatta Hosp.

John drove from Ngong to Prestige via Junction. How many *kilometres* did he cover in total?

A. 15*km*
B. 18*km*
C. 21*km*
D. 25*km*

37. The perimeter of the isosceles triangle dra below is 48*m* and its base length is 18*m*.



What is the area of the triangle in *square metres*?

A. $54m^2$
B. $435m^2$
C. $108m^2$
D. $135m^2$

38. Twenty four-5*dl* packets of milk were poured into a 50 *litres* container. How many more such packets of milk were needed to fill the container?

A. 76
B. 38
C. 120
D. 100

39. In the year 2020 8th February was Saturday. What day was 1st June the same year?

A. Thursday
B. Sunday
C. Monday
D. Friday

40. Samuel paid *sh.* 2700 for a trouser after 10% discount was allowed. How much would he have paid for the trouser had he been allowed a 12% discount?

A. *sh.* 3200
B. *sh.* 2640
C. *sh.* 2600
D. *sh.* 3000

41. What is the capacity of a cylindrical tank whose volume is $2.4m^3$?

A. 2400*l*
B. 24000*l*
C. 240*l*
D. 0.0024*l*

42. John started his journey at 6.00*pm* and arrived his destination at 6.00 *a.m* after covering a distance of 800*km*. What was his average speed for the journey in *kilometres per hour*?

A. $74\frac{2}{3}$ *km/hr*
B. 133*km/hr*
C. 66*km/hr*
D. $66\frac{2}{3}$ *km/hr*

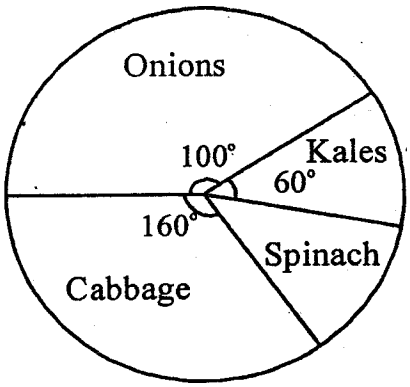
43. An open cylinder container has a diameter of $42cm$ and a height of $15cm$. What is the total surface area of the container?

A. $3366cm^2$
B. $1980cm^2$
C. $1386cm^2$
D. $4752cm^2$

44. A trader made a profit of *sh.* 16000 in the month of May. In the following month his profit increased to *sh.* 20000. What was the percentage increase in the profit?

A. 25%
B. 20%
C. 30%
D. $16\frac{2}{3}\%$

45. The pie chart below shows how a lady used her piece of land on farming.



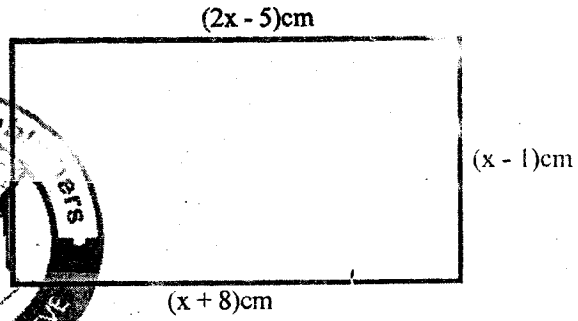
If she used 50 *hectares* on spinach, how many *hectares* of land was under onion plantation?

A. 200
B. 125
C. 75
D. 100

46. What is the value of $2\frac{1}{4}\%$ written as a fraction to its simplest from possible?

A. $\frac{9}{4}$
B. $\frac{9}{400}$
C. $\frac{3}{200}$
D. $\frac{9}{40}$

47. What is the area of the figure drawn below in *square centimetres*?

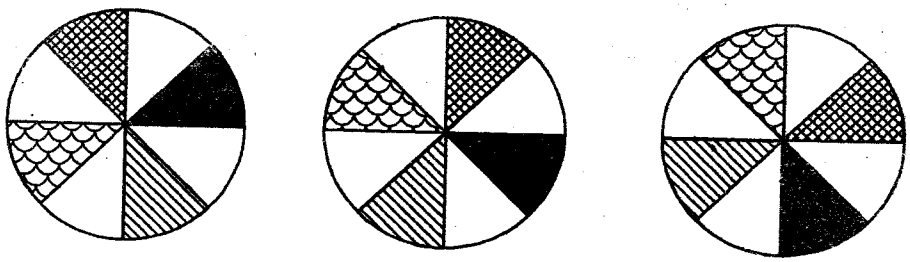


A. $168cm^2$
B. $66cm^2$
C. $252cm^2$
D. $156cm^2$

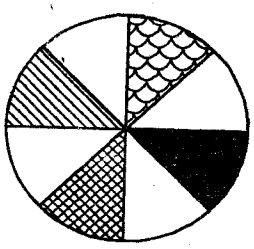
48. The height of two boys are in the ratio of 2:3. If the height of the shorter boy is $108cm$, what is the difference in their heights?

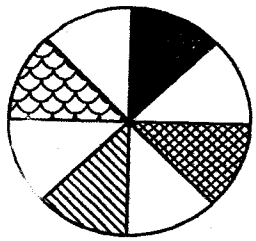
A. $270cm$
B. $64cm$
C. $162cm$
D. $54cm$

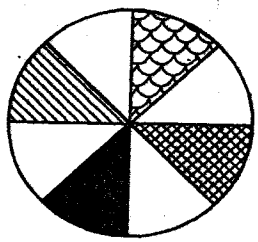
49. Study the pattern drawn below.

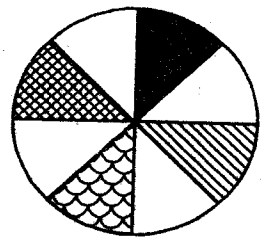


Which of the following pattern is the next?

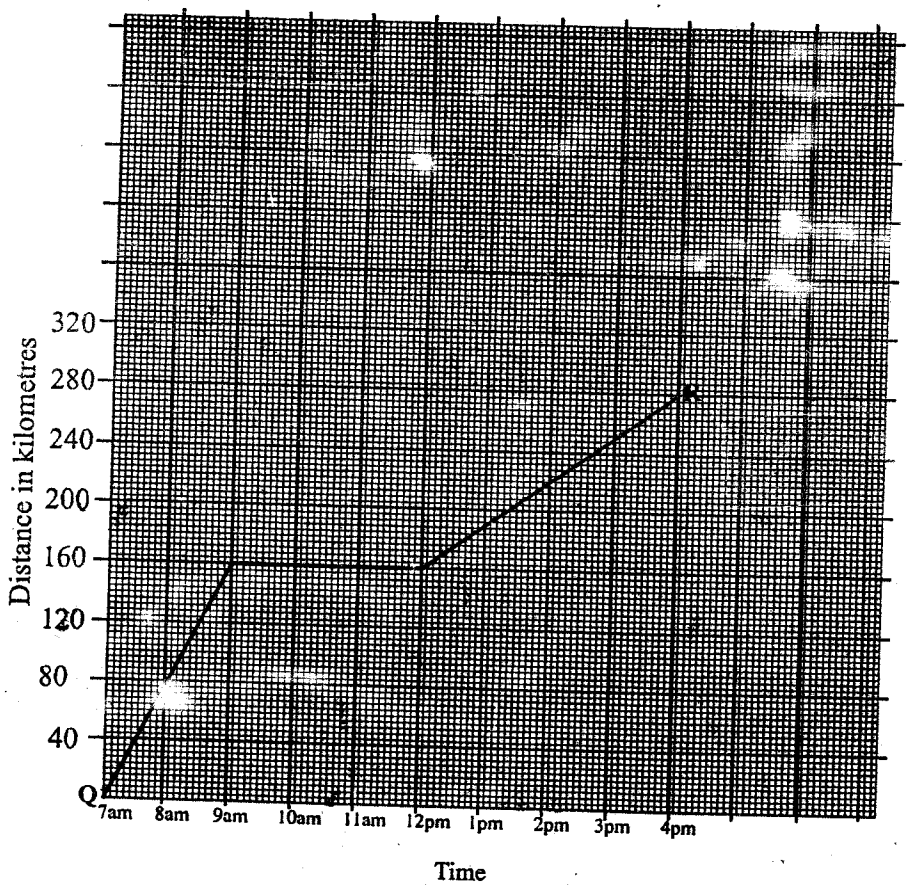
A. 

B. 

C. 

D. 

50. ***The line graph below represents a motorists journey from town Q to R.***



After covering a certain distance the motorist had a stop over. How long did he take for the stop over?

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