2023 PRIMARY 6 PRELIMINARY EXAMINATION

Name: Date: 21 August 2023

Class: Primary 6 ( ) Time: 8.00 a.m. - 9.00 a.m.

Parent's Signature: _____ Marks: _____ / 100

Paper 1 comprises 2 booklets, A and B.

MATHEMATICS
PAPER 1
(BOOKLET A)

20

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. **Shade your answers in the Optical Answer Sheet (OAS) provided.**
6. The use of calculators is **NOT** allowed.

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Questions **1** to **10** carry 1 mark each. Questions **11** to **15** carry 2 marks each.
For each question, four options are given. One of them is the correct answer.
Make your choice (1, 2, 3 or 4).
Shade the oval (1, 2, 3 or 4) on the Optical Answer Sheet. (20 marks)

1. In 157.438, which digit is in the hundredths place?

   (1) 1
   (2) 8
   (3) 3
   (4) 4

2. Express 5 kg 20 g in grams.

   (1) 502 g
   (2) 520 g
   (3) 5020 g
   (4) 5200 g

3. How many tens are in the product of 175 and 60?

   (1) 105
   (2) 1050
   (3) 10 500
   (4) 105 000

4. The volume of a cube is 64 cm^3. What is the area of each face?

   (1) 32 cm^2
   (2) 16 cm^2
   (3) 8 cm^2
   (4) 4 cm^2

5. Haizum runs a distance of 50 m in 10 s. Find her average speed in m/s.

   (1) 0.5 m/s
   (2) 5 m/s
   (3) 50 m/s
   (4) 500 m/s

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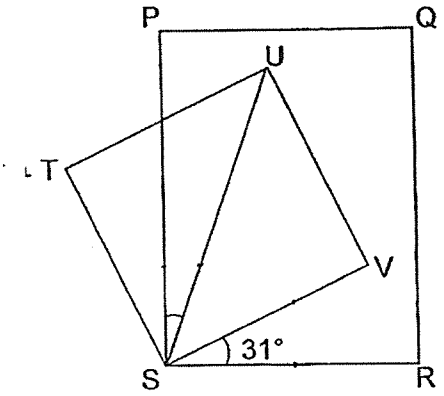
6. In a class of 38 students, 17 are girls. Find the ratio of the number of boys to the number of girls.

(1) 17 : 21
(2) 21 : 17
(3) 21 : 38
(4) 38 : 17

7 Which of the following are common factors of 36 and 54?

(1) 2 and 27
(2) 3 and 12
(3) 4 and 9
(4) 6 and 18

8. PQRS is a rectangle and STUV is a square. Find ∠PSU.



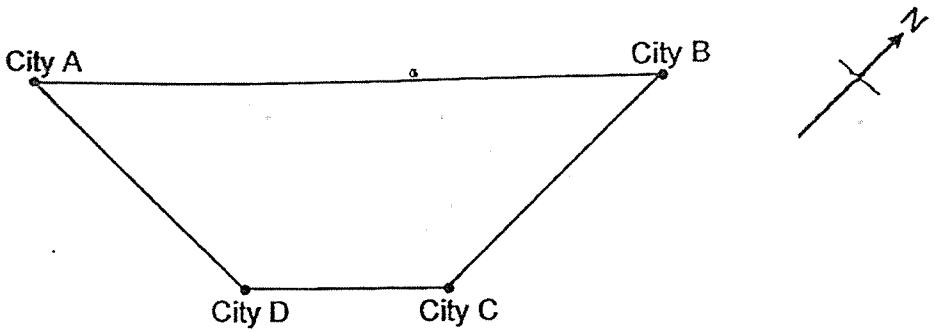
(1) 14°
(2) 22.5°
(3) 29.5°
(4) 59°

9. The average mass of 4 students in a team was 35 kg. When another student joined the team, the average mass of the 5 students became 33 kg. What was the mass of the student who just joined the team?

(1) 25 kg
(2) 33 kg
(3) 35 kg
(4) 43 kg

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10. The map below shows the locations of four cities that are linked by railroads.



Which one of the following statements is correct?

(1) From City A to City B, the train has to travel due east.
(2) From City B to City C, the train has to travel due south.
(3) From City C to City D, the train has to travel due north-east.
(4) From City D to City A, the train has to travel due north-west.

11. Gavin buys n notebooks at \$4 each. He gave the cashier \$30. How much change did he receive?

(1) $\$(26 - n)$
(2) $\$(26 + n)$
(3) $\$(30 - 4n)$
(4) $\$(30 + 4n)$

12. Daania had green and yellow marbles for sale. She sold 120 green marbles. 25% of the marbles sold were yellow. How many marbles did Daania sell altogether?

(1) 30
(2) 40
(3) 150
(4) 160

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13. Which two figures below have the same area? (Take $\pi = \frac{22}{7}$)

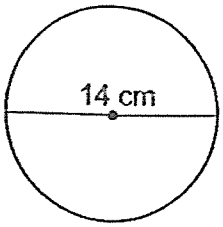


Figure 1

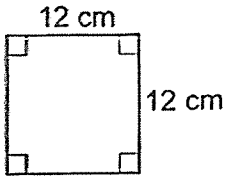


Figure 2

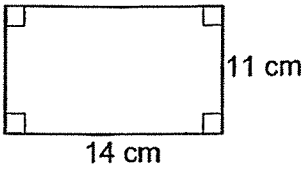


Figure 3

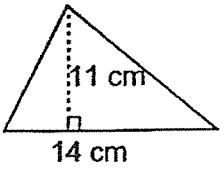


Figure 4

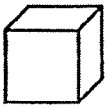
(1) Figure 1 and Figure 2
(2) Figure 1 and Figure 3
(3) Figure 2 and Figure 3
(4) Figure 3 and Figure 4

14. A big container contains 7 marbles while a small container contains 4 marbles. There are 11 containers and 62 marbles altogether. How many small containers are there?

(1) 7
(2) 6
(3) 5
(4) 4

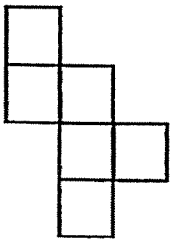
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15. The figure shows a cube.

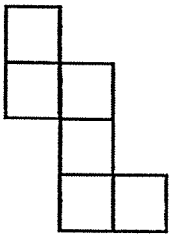


Which of the following is **not** a net of a cube?

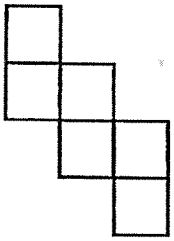
(1)



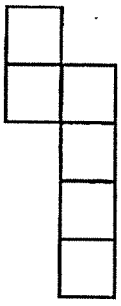
(2)



(3)



(4)



End of Booklet A

Go on to Booklet B

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2023 PRIMARY 6 PRELIMINARY EXAMINATION

Name: _____ Date: 21 August 2023

Class: Primary 6 ( ) Time: 8.00 a.m. - 9.00 a.m.

Parent's Signature: _____

Paper 1 comprises 2 booklets, A and B.

MATHEMATICS
PAPER 1
(BOOKLET B)

25

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions. Show your working clearly.
5. Write your answers in this booklet.
6. Use a dark blue or black ballpoint pen to write your answers.
7. Do not use correction tape or highlighters for your solutions.
8. The use of calculators is NOT allowed.

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Questions **16** to **20** carry 1 mark each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (5 marks)

16. Express $\frac{7}{40}$ as a decimal.

Ans: _____

17. Simplify the following expression.

$7m + 5 - 3m - 4$

Ans: _____

18. Ah Cheng has $1\frac{3}{4}$ m of ribbon. She cuts the ribbon into $\frac{1}{8}$ m pieces to tie each into a bow. How many bows does she get?

Ans: _____

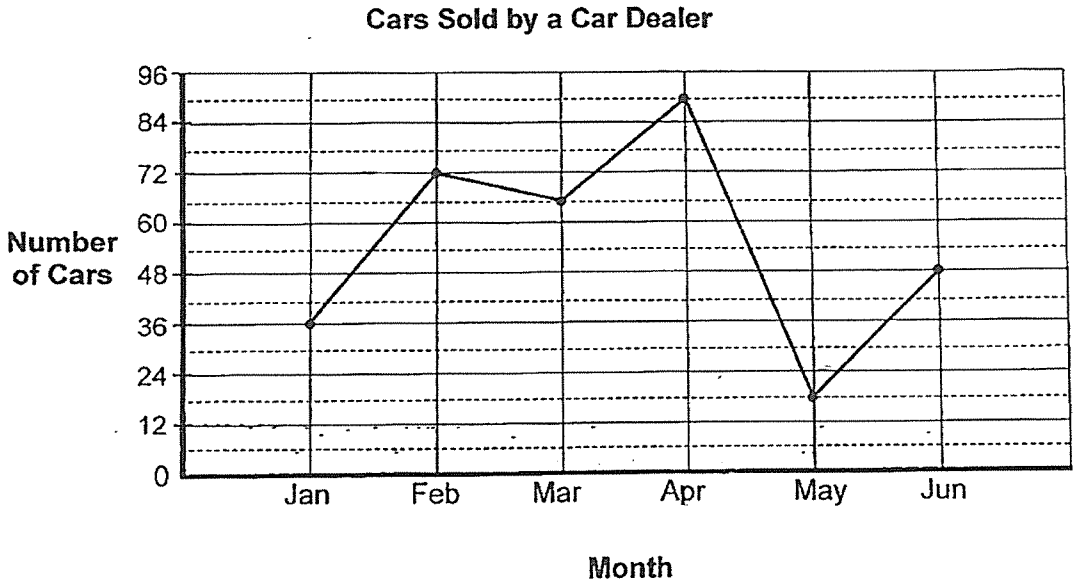
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19. A container measuring 11 cm by 10 cm by 20 cm was filled to the brim with orange juice. Anita drank half of it. How much orange juice was left? Give your answer in litres.

Ans: _____ ℓ

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20. The line graph below shows the number of cars sold monthly from January to June by a car dealer. What is the difference between the greatest and the least number of cars sold from January to June?



Ans: _____

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Questions 21 to 30 carry 2 marks each. Show your working clearly in the space provided for each question and write your answers in the spaces provided.
For questions which require units, give your answers in the units stated. (20 marks)

21. The number of people at the theatre when rounded to the nearest hundred was 3400.

(a) What was the least possible number of people at the theatre?

Ans: (a) _____

(b) What was the greatest possible number of people at the theatre?

Ans: (b) _____

22. Devi and Ali each spent the same amount of money. Devi had $\frac{1}{4}$ of his money left and Ali had had $\frac{3}{5}$ of his money left. What was the ratio of the amount of money Devi had at first to the amount of money Ali had at first?

Ans: _____

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23. Sharon took a taxi from her office to home. Her taxi fare was based on the charges shown.

First 1 km	$3.40
Every additional 400 m or less	$0.25
Every 45 seconds of waiting time or less	$0.25

The taxi stopped at a traffic light for 1 min 30 s and travelled a total distance of 5 km to reach Sharon's home. How much was her taxi fare?

Ans: $_____

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24. At the market, 100 g of crabs cost $2.40. How much does 4 kg of crabs cost?

Ans: $_____

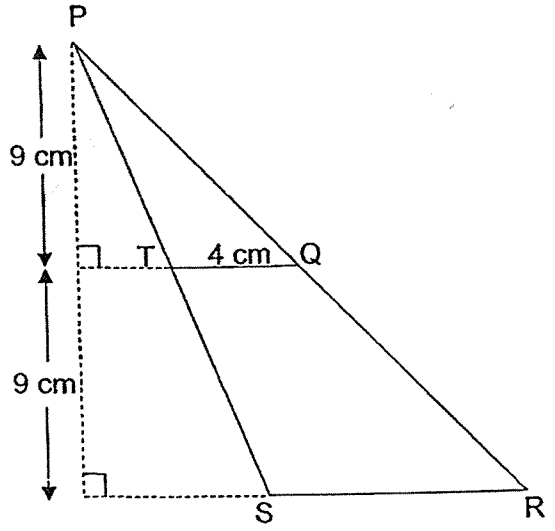
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25. Miss Tan spent 25% of her salary on food and $\frac{1}{5}$ of the remainder on transportation. What percentage of Miss Tan's salary was left?

Ans: _____%

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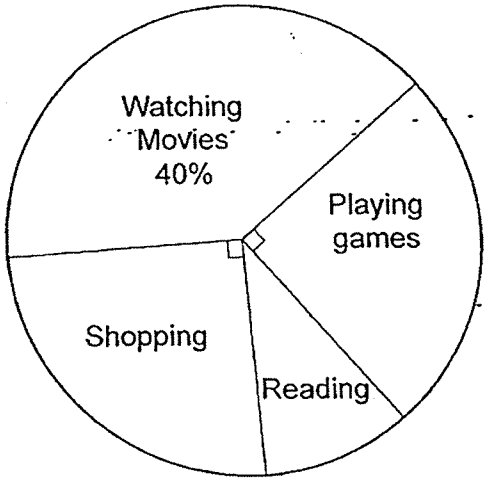
26. The figure below is made up of two triangles, PRS and PQT. TQ = 4 cm and the length of TQ is half the length of SR. Find the area of TQRS.



Ans: _____ cm^2

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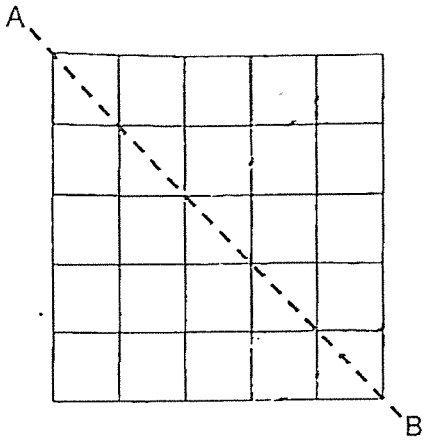
27. In a survey, a group of students were asked about their favourite pastime. The pie chart shows their choices. What fraction of the students liked to read? Express your answer in its simplest form.



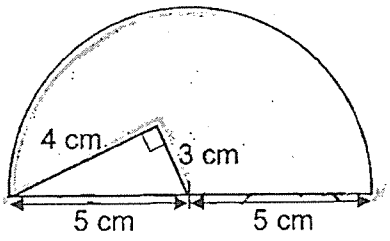
Ans: _____

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28. In the figure below, the dotted line AB is the line of symmetry. Shade 2 squares in the figure to complete the symmetric figure.



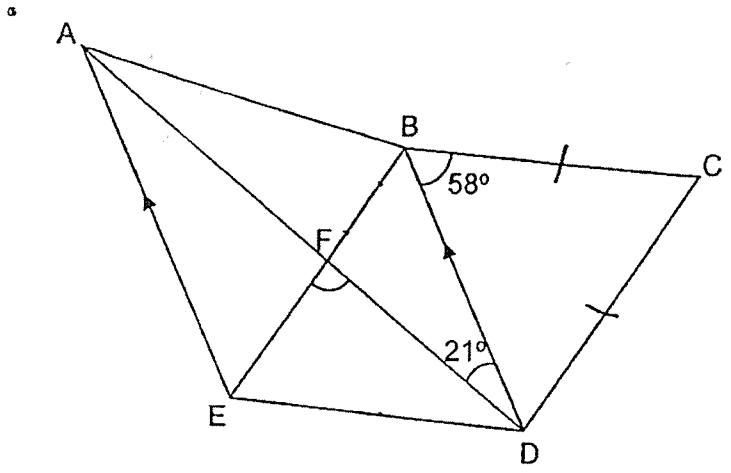
29. The figure is made up of a triangle in a semicircle of radius 5 cm. The sides of the triangle measure 4 cm, 3 cm and 5 cm. Find the perimeter of the shaded part. (Take $\pi = 3.14$)



Ans: _____cm

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30. In the figure, ABDE is a trapezium and BCDE is a rhombus. AFD is a straight line. AE // BD, ∠ADB = 21° and ∠DBC = 58°. Find ∠EFD.



Ans: _____°

End of Booklet B

End of Paper 1

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2023 PRIMARY 6 PRELIMINARY EXAMINATION

Name: _____ ( ) Date: 21 August 2023

Class: Primary 6 ( ) Time: 10.30 a.m. - 12.00 noon

Parent's Signature: _____

MATHEMATICS

PAPER 2

55

INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions. Show your working clearly.
5. Write your answers in this booklet.
6. Use a dark blue or black ballpoint pen to write your answers.
7. Do not use correction tape or highlighters for your solutions.
8. You are **allowed** to use a calculator.

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Questions 1 to 5 carry 2 marks each. Show your working clearly and write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (10 marks)

1. Jun Yee spent $(9b + 7) on Saturday. He spent $b more on Sunday than on Saturday. How much did he spend altogether on both days?

Ans: $ _____

2. Last Sunday, the ratio of the number of lorries to the number of cars to the number of motorcycles on the road was 11 : 5 : 20. On Monday, the number of lorries on the road remained the same. However, the number of cars increased by 50% and the number of motorcycles decreased by 10%.
Find the ratio of the number of cars to the number of lorries to the number of motorcycles on the road on Monday. Express your answer in its simplest form.

Ans: _____

3. At first, Julian and Kelvin were facing the same direction. Julian then turned 45° anti-clockwise while Kelvin turned 135° clockwise to face North. What direction did Julian face in the end?

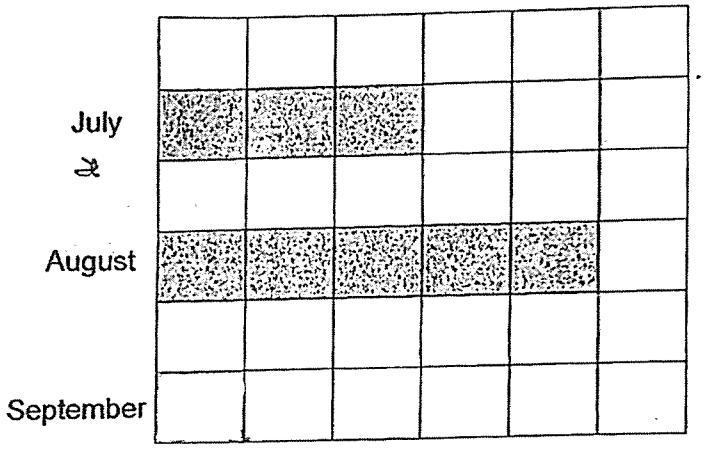
Ans: _____

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4. The graph shows the number of laptops sold from July to September last year. The total number of laptops sold in August and September was $\frac{2}{3}$ of the total number of laptops sold over the 3 months. The bar for the number of laptops sold in September has not been drawn.

Complete the graph by shading to show the number of laptops sold in September.

Ans:



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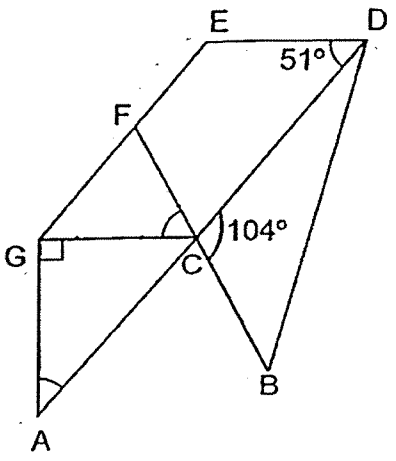
5. A florist had some roses and orchids. She sold $\frac{1}{4}$ of the roses and $\frac{3}{5}$ of the orchids. $\frac{4}{7}$ of the flowers sold were roses. What fraction of the flowers did the florist sell? Express your answer in its simplest form.

Ans:

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For questions **6** to **17**, show your working clearly and write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part-question. (45 marks)

6. AGC is a right-angled triangle and GEDC is a parallelogram. ACD and BCF are straight lines. $\angle BCD = 104°$ and $\angle EDC = 51°$.



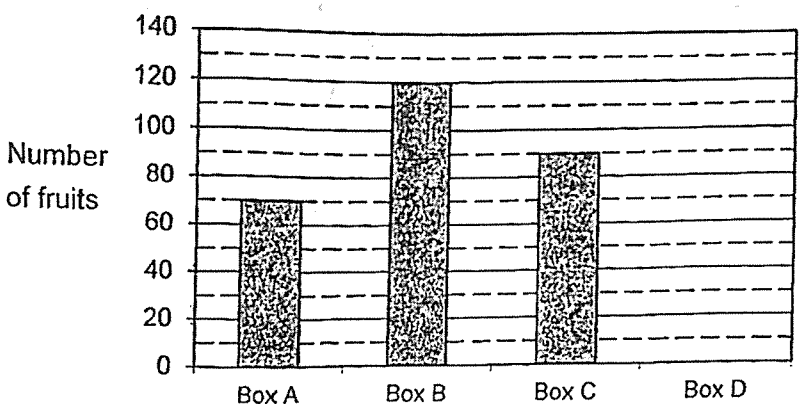
(a) Find $\angle FCG$.

Ans: (a) _____ [2]

Ans: (b) _____ [1]

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7. Uncle Lim has 4 boxes of fruits, Box A, Box B, Box C and Box D.
The bar graph below shows the number of fruits in each box.
The bar representing Box D is not shown.



(a) How many percent more fruits are there in Box B than Box A?
Give your answer as a mixed number in its simplest form.

Ans: (a) _____ [1]

(b) Box C contains only apples and oranges. There are 4 more apples than oranges in Box C. How many apples are there in Box C?

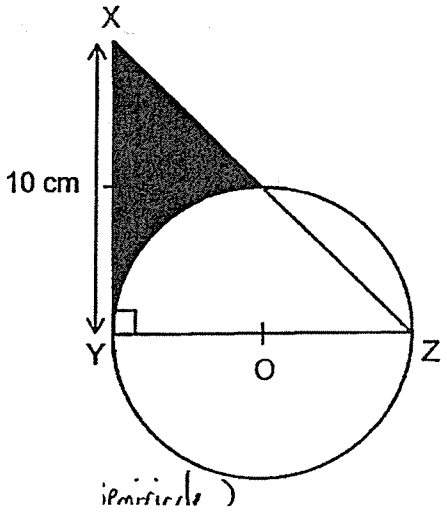
Ans: (b) _____ [1]

(c) The average number of fruits in the 4 boxes is 90.
Find the number of fruits in Box D.

Ans: (c) _____ [1]

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8. The figure below is made up of a circle and a right-angled triangle XYZ. O is the centre of the circle. YOZ is a straight line. XY = YZ = 10 cm. Find the area of the shaded part. (Take π = 3.14)



Ans: _____ [3]

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9. Three girls had a total of 8.7 m of ribbon at first. They each used the same amount of ribbon to decorate their classroom. Ai Le used 40% of her ribbon, Bee Huan used 10% of hers and Cally used 50% of hers. How many centimetres of ribbon was left in the end?

Ans: _____ [3]

10. Ralph and Steve took part in a cycling race. Both of them did not change their speed throughout the race. Ralph cycled at a speed of 20 km/h. When Steve covered half the distance, Ralph was 3.5 km in front of him. Ralph reached the finishing line at 10.45 a.m. What time did Steve reach the finishing line?

Ans: _____ [3]

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11. At a market, eggs were sold only in big trays of 50 eggs each and small trays of 12 eggs each. Hawker A and Hawker B bought the same number of trays of eggs. Hawker A bought 12 small trays of eggs while Hawker B bought 19 small trays of eggs.

Hawker B used up all the big trays of eggs that he had bought. As a result, he had 1416 fewer eggs than Hawker A. How many trays of eggs did both hawkers buy altogether?



Big tray

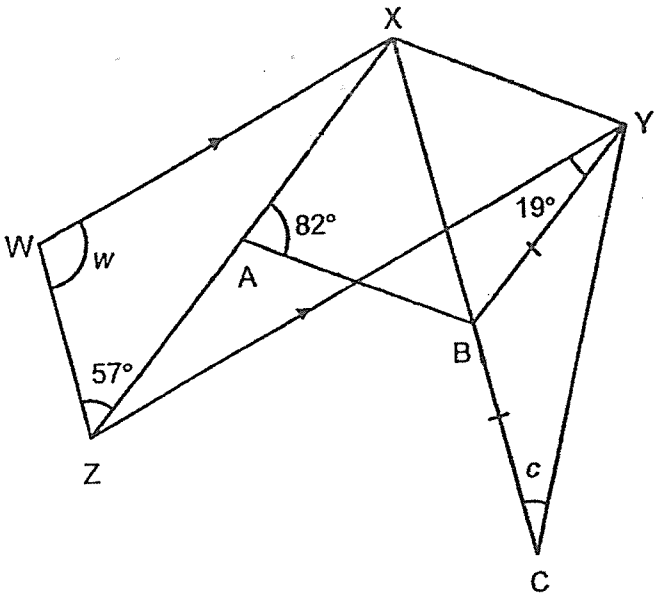


Small tray

Ans: _____ [4]

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12. In the figure, WXYZ is a trapezium and AXYB is a rhombus. XBC and XAZ are straight lines. WX // ZY, BC = BY, ∠XAB = 82°, ∠ZYB = 19° and ∠WZX = 57°.



(a) Find ∠c

Ans: (a) _____ [2]

(b) Find ∠w

Ans: (b) _____ [2]

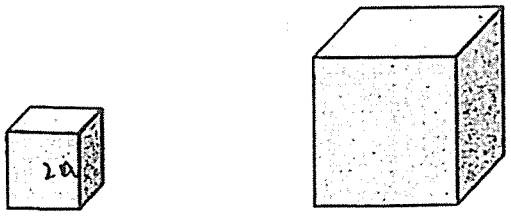
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13. Madam Aminah baked some cookies to sell. $\frac{3}{4}$ of them were cream cookies and the rest were plain cookies. After selling 210 plain cookies and $\frac{5}{6}$ of the cream cookies, she had $\frac{1}{5}$ of the cookies left. How many cookies did Madam Aminah sell altogether?

Ans: _____ [4]

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14. The figure below shows a small cube and a large cube. The length of each small cube is half the length of each large cube. Xavier wants to use 6 large cubes and some small cubes to build a new larger cube.



Small cube Large cube

(a) What is the least number of small cubes that Xavier needs to build the new larger cube?

Ans: (a) _____ [2]

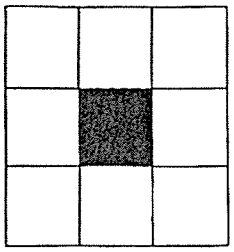
(b) The volume of the new cube built by Xavier is 2744 cm^3.
Find the length of each small cube.

Ans: (b) _____ [2]

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15. The table below shows numbers from 1 to 56. Kai and Ray are given a plastic frame that covers exactly 9 squares of the table with the centre square covered.

1	2	3	4	5	6	7	8
9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56



Plastic Frame

(a) Kai puts the frame on the 9 squares shown in the figure below.
What is the average of the 8 numbers that is seen in the frame below?

29	30	31
37		39
45	46	47

Ans: (a) _____ [1]

(b) Ray puts the frame on another 9 squares.
The sum of the 8 numbers that can be seen in that frame is 344.
What is the sum of all the even numbers that Ray can see in that frame?

Ans: (b) _____ [3]

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16. Rina has a total of 1284 red and yellow rubber bands. She has 828 fewer red rubber bands than yellow rubber bands. She packs all the red rubber bands equally into red paper bags and packs all the yellow rubber bands into yellow paper bags. There are four times as many yellow paper bags as red paper bags. Each yellow paper bag contains 6 more rubber bands than each red paper bag.

(a) How many yellow rubber bands does Rina have?

Ans: (a) _____ [1]

(b) How many bags of red rubber bands does Rina have?

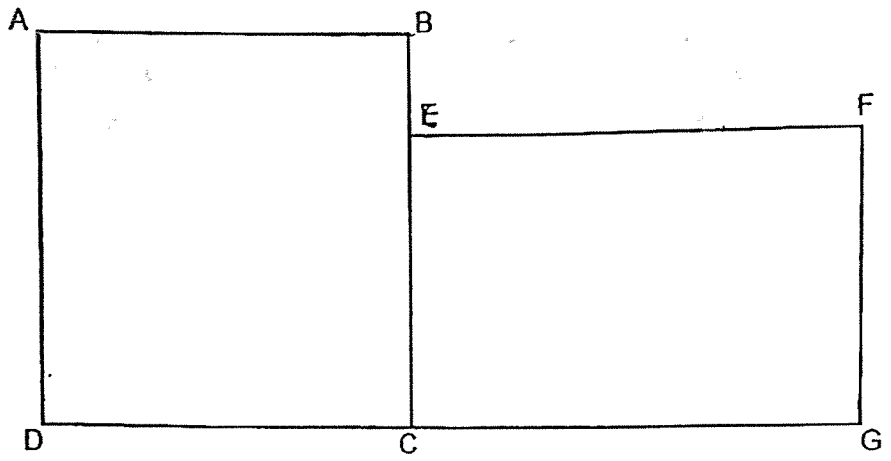
Ans: (b) _____ [2]

(c) How many rubber bands are there in each yellow bag?

Ans: (c) _____ [2]

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17. The figure below is made up of Square ABCD and Rectangle EFGC. DCG is a straight line. DG = 49 cm and BE = 3 cm. The perimeters of Rectangle EFGC and Square ABCD are the same. Find the area of the figure.



Ans: _____ [5]

End of Paper 2

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SCHOOL : TAO NAN SCHOOL

LEVEL : PRIMARY 6

SUBJECT : MATHEMATICS

TERM : 2023 PRELIMINARY EXAMINATION

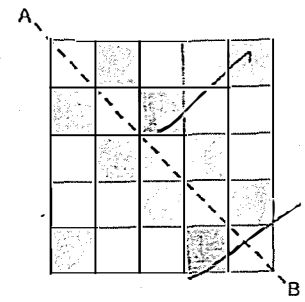
Booklet A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	3	2	2	2	2	4	1	1	2
Q11	Q12	Q13	Q14	Q15					
3	4	2	3	4					

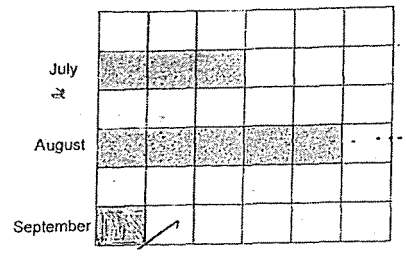
Booklet B

Q16	0.175
Q17	4m + 1
Q18	14
Q19	1.1L
Q20	72
Q21a	3350
Q21b	3449
Q22	Devi spent = $\frac{3}{4} = \frac{6}{8}$ Ali spent = $\frac{2}{5} = \frac{6}{15}$ D: A = 8:15
Q23	5km – 1km = 4km 4km / 0.4km = 10 1min 30s = 90s 90 / 45 = 2 Taxi fare = \$3.4 + (10 x \$0.25) + (2 x \$0.25) = \$6.4
Q24	4kg = 4000g 4000 / 100 = 40 40 x \$2.4 = \$96
Q25	$\frac{4}{5}$ x 75% = 60%
Q26	Area of PSR = 0.5 x 8 x 18 = 72cm² Area of PSR = 0.5 x 4 x 9 = 18cm² Area of QRS = 72 – 18 = 54cm²

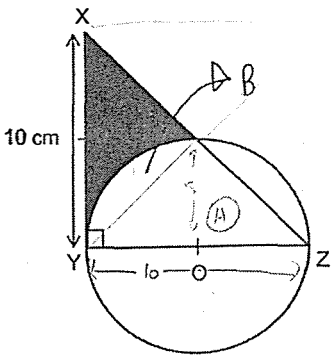
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Q27	$\frac{1}{10}$
Q28	
Q29	$(\pi \times 5) + 5 + 3 + 4 =$ **27.7cm²**
Q30	∠FBD = **58°** ∠EFD = 58° + 21° = **79°**

PAPER 2

Q1	\$(9b + 7) + \$(9b + b + 7) = **\$(19b + 14)**
Q2	Sunday C : L : **M** = 5 : 11 : 20 = 10 : 22 : 40 Monday C : L : M = **15 : 22 : 36**
Q3	South
Q4	
Q5	Roses = 16u Orchids = 5u Fraction sold = 7 ÷ (16 + 5) = $\frac{1}{3}$
Q6a	∠GCD = 180° - 51° = 129° ∠FCD = 180° - 104° = 76° ∠FCG = 129° - 76° = **53°**
Q6b	∠GCA = 104° - 53° = 51° ∠CAG = 180° - 90° - 51°= **39°**

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Q7a	120 - 70 = 50 $\frac{50}{70}$ x 100% = **$71\frac{3}{7}$%**
Q7b	(90 + 4) ÷ 2 = **47**
Q7c	90 **x** 4 = 360 360 - 70 - 120 - 90 = **80**
Q8	Area of triangle XYZ = 0.5 x 10 x 10 = 50 cm² Area of triangle A = 0.5 x 50 = 25cm² Area of semicircle = 0.5 x 3.14 x 5² = 39.25cm² 2 area B + area A = area of semicircle Area B = (39.25 - 25) ÷ 2 = 7.125cm² Shaded area = 25 - 7.125 = **17.875cm²** 
Q9	Fraction Ai Le used = $\frac{4}{10} = \frac{20}{50}$ Fraction Bee Huan used = $\frac{1}{10} = \frac{20}{200}$ Fraction Cally used = $\frac{5}{10} = \frac{20}{40}$ Since all 3 used same amount, find LCM of 1, 4 & 5 = 20 8.7m = 50u + 200u + 40u = 290u Units left = 290u - 20u - 20u - 20u = 230u 8.7 x $\frac{230}{290}$ = 6.9m = **690cm**
Q10	3.5km x 2 = 7km By the time Steve reach the finishing line, Ralph would be 7km past the finishing line Time take for Ralph to cover 7km = 7 ÷ 20 = 21 min Time Steve reached finishing line = 21 min after 10.45am = **11.06am**
Q11	12 x 12 = 144 12 x 7 = 84 7 x 50 = 350 350 - 84 = 266 1416 - 266 = 1150 1150 ÷ 50 = 23 23 + 19 = 42 42 x 2 = **84**
Q12a	∠ABX = ∠XBY = (180° - 82°) ÷ 2 = 49° ∠YBC = 180° - 49° = 131° ∠c = (180° - 131°) ÷ 2 = **24.5°**

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Q12b	∠AXY = 49° x 2 = 98° ∠ZYX = 82° - 19° = 63° ∠XZY = 180° - 98° - 63° = 19° ∠w = 180° - (57° + 19°) = **104°**
Q13	15u - 210 = 8u 7u = 210 1u = 30 25u = 25 x 30 = 750 750 + 210 = **960**
Q14a	Let length of small cube be 1u, length of big cube be 2u Volume of small cube = 1cm^3 Volume of large cube = 8cm^3 8 small cubes can fit into 1 large cube Need 2 more large cubes to form the larger cube → **16** small cubes
Q14b	Length of new cube = $\sqrt[3]{2744}$ = 14cm Length of new cube is made up of 4 small cubes: 14 ÷ 4 = **3.5cm**
Q15a	(29 + 30 + 31 + 37 + 39 + 45 + 46 + 47) ÷ 8 = **38**
Q15b	Pattern: average of the 8 numbers in plastic frame is covered by black box Average of 344 = 344 ÷ 8 = 43 → black box is on 43 Sum of all even numbers = 34 + 36 + 42 + 44 + 50 + 52 = **258**
Q16a	(1284 + 828) ÷ 2 = **1056**
Q16b	1284 - 828 = 228 6 x 4 = 24 1056 ÷ 24 = 44 44 - 6 = 38 228 ÷ 38 = **6**
Q16c	1056 ÷ 24 = **44**
Q17	49 cm - 3 cm = 46 cm DC = 46 ÷ 2 = 23 cm EC = 23 - 3 = 20 cm Perimeter of ABCD = perimeter of CEFG = 4 x 23 = 92 cm EF = (92 - 20 - 20) ÷ 2 = 26 cm Area of figure = 23 x 23 + 20 x 26 = **1049 cm^2**

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