NAN HUA PRIMARY SCHOOL

PRELIMINARY EXAMINATION 2024

PRIMARY 6

MATHEMATICS

PAPER 1

(BOOKLET A)

Total Time for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the 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.

Name : _____ (

Form Class : 6_____ **Teaching Group: 6M**_____

Date : 21 August 2024

This booklet consists of 7 printed pages and 1 blank page.

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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) and shade your answer on the Optical Answer Sheet.

(20 marks)

1 In 21.56, which digit is in the tenths place?

(1) 1

(2) 2

(3) 5

(4) 6

2 Which of the following is the first common multiple of 4 and 6?

(1) 1

(2) 2

(3) 12

(4) 24

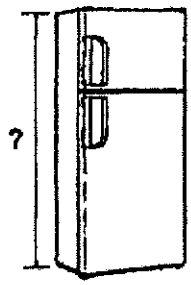
3 The diagram shows a refrigerator. Which of the following could be the height of the refrigerator?

(1) 18 cm

(2) 180 cm

(3) 18 m

(4) 180 m



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4 Which of the following is the same as 9 ℓ 75 ml?

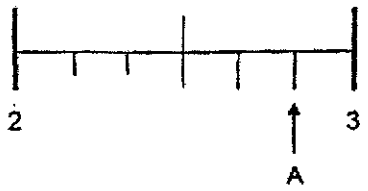
(1) 9.075 ml

(2) 975 ml

(3) 9075 ml

(4) 9750 ml

5 In the number line, what is the mixed number represented by A?



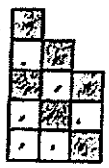
(1) $2\frac{2}{3}$

(2) $2\frac{3}{4}$

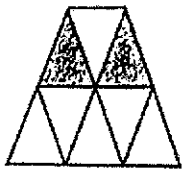
(3) $2\frac{5}{6}$

(4) $2\frac{6}{7}$

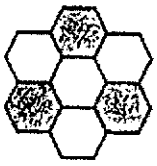
6 Which of the following shows $\frac{1}{2}$ of the figure shaded?



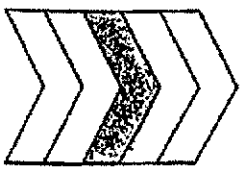
(1)



(2)



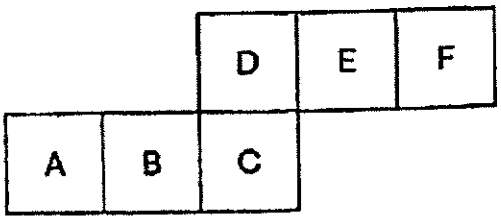
(3)



(4)

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7 The figure below is the net of a cube. Which 2 faces are opposite each other?



(1) A and D

(2) D and E

(3) C and F

(4) B and E

8 Sharon watched a movie that was 2 h 20 min long. It ended at 00 30. What time did the movie start?

(1) 02 50

(2) 10 10

(3) 22 10

(4) 22 50

9 William had \$100. After buying 5 identical bags, he had \$$p$ left. Find the cost of each bag.

(1) $\$\left(\frac{100-p}{5}\right)$

(2) $\$\left(\frac{100p}{5}\right)$

(3) $\$(100-5p)$

(4) $\$\left(100-\frac{p}{5}\right)$

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10 $\frac{5}{9}$ of the audience in a theatre were adults and the rest were children. $\frac{1}{4}$ of the children were boys and the rest were girls. What was the ratio of the number of girls to the number of adults?

(1) 1 : 5

(2) 3 : 5

(3) 5 : 1

(4) 5 : 3

11 Nathanael spent 20% of his money on a cap . He used the rest of the money to buy bag and a shirt. The bag cost $15 more than the cap. The shirt cost $165. Find the cost of the bag.

(1) $ 35

(2) $ 48

(3) $ 60

(4) $ 75

12 Mrs Sandra can bake either 90 big cupcakes or 150 small cupcakes with the same amount of ingredients. After baking 60 big cupcakes, what is the maximum number of small cupcakes she can bake with the remaining ingredients?

(1) 30

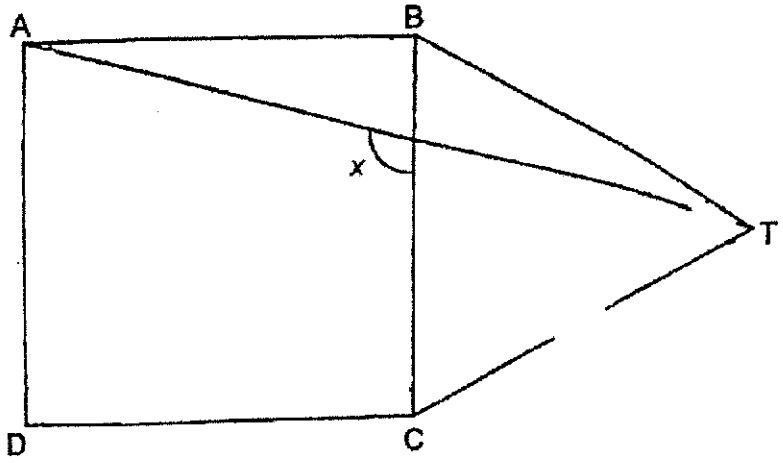
(2) 50

(3) 90

(4) 100

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13 In the figure, ABCD is a square and BCT is an equilateral triangle. AT is a straight line. Find $\angle x$.



(1) 105°

(2) 120°

(3) 135°

(4) 150°

14 The figures below are made up of identical squares.

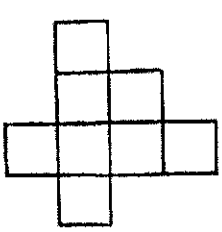


Figure 1

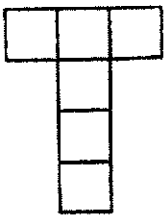


Figure 2

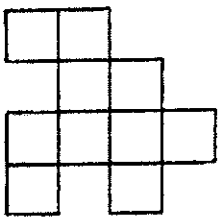


Figure 3

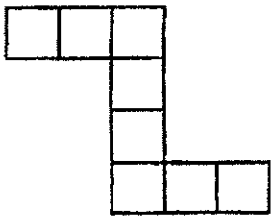


Figure 4

How many figure(s) has/have at least one line of symmetry?

(1) 1

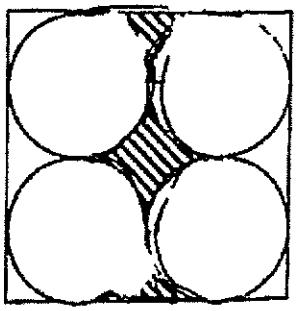
(2) 2

(3) 3

(4) 4

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15 The figure below is made up of 4 identical circles inside a square. The length of the square is 56 cm. Find the perimeter of the shaded part. (Take $\pi = \frac{22}{7}$)



(1) 88 cm

(2) 144 cm

(3) 176 cm

(4) 232 cm

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NAN HUA PRIMARY SCHOOL

PRELIMINARY EXAMINATION 2024

PRIMARY SIX

MATHEMATICS

PAPER 1

(BOOKLET B)

Total Time for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Use dark blue or black ball point pen to write your answers in the space provided for each question.
6. Do not use correction tape/ fluid/ highlighter.
7. The use of calculators is **NOT** allowed.

Marks Obtained

Section		Maximum Marks	Actual Marks
Paper 1	Booklet A	20	
	Booklet B	25	
Paper 2		55	
Total		100	

Name : _____ ( )

Form Class : 6_____ **Teaching Group: 6M**_____

Date : 21 August 2024

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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 Round 2.385 to 2 decimal places.

Ans : _____

17 Find the value of 85 – (30 + 24) + 6 x 3.

Ans: _____

18 Find the value of $\frac{3}{4} \times \frac{1}{6}$. Give your answer in its simplest form.

Ans: _____

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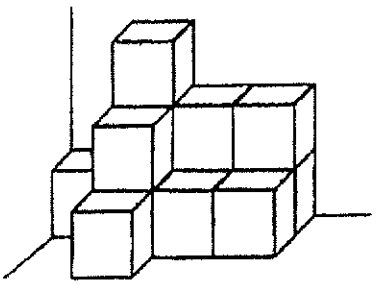
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19 The radius of a circle is 14 cm. Find its area. (Take $\pi = \frac{22}{7}$)

Ans: _____ cm^2

20 The figure below consists of 1-cm cubes. What is the volume of the figure?



Ans: _____ cm^3

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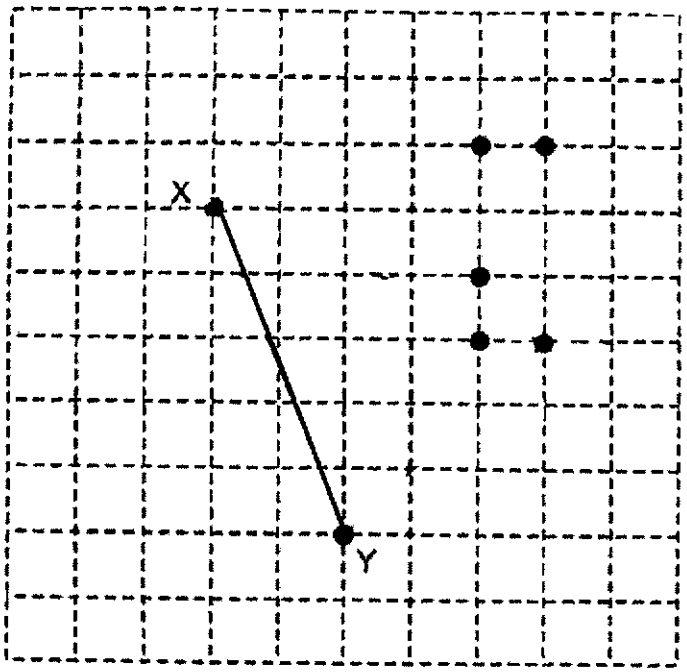
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Questions **21** to **30** carry 2 marks each. Show your working clearly and write your answers in the spaces provided. For question which require units, give your answers in the units stated.

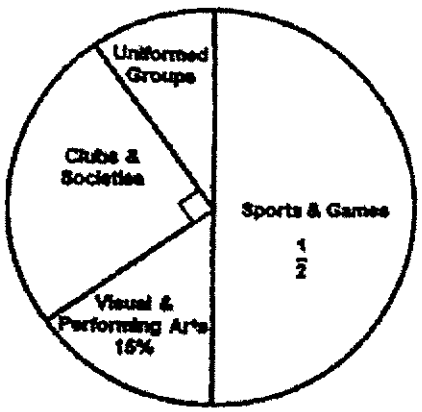
(20 marks)

21 In the square grid below, XY is a straight line.

Draw and label isosceles triangle XYZ using one of the given points as point Z.



22 The pie chart shows the Co-Curricular Activities (CCA) that 290 Primary 5 students join in a school. How many Primary 5 students join Uniformed Groups?



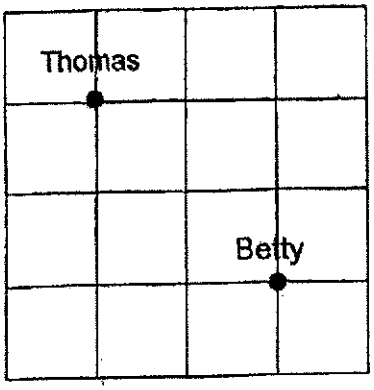
Ans: _____

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23 The square grid shows the position of Thomas and Betty.



(a) Fill in the blank with North-East, North-West, South-East or South-West.

Thomas is _____ of Betty.

(b) Thomas and Betty faced the same direction at first. Thomas then turned 45° clockwise while Betty turned 135° anti-clockwise to face North-East. What direction did Thomas face in the end?

Ans: _____

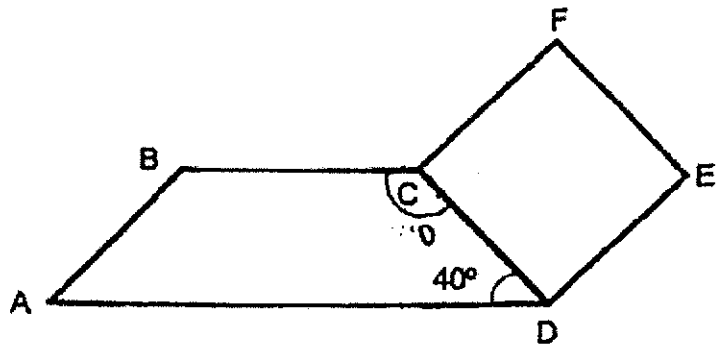
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24 8 people shared the cost of a meal equally. The cost of the meal was divided by 6 instead of 8 by mistake. As a result, each of the eight people paid $4 more than what they should have paid. What is the correct amount that each person should pay?

Ans : $ _____

25 In the figure below, ABCD is a trapezium and CDEF is a square. Given that ∠ADC = 40°. Find ∠BCF.



Ans : _____°

Please do not write in the margin.

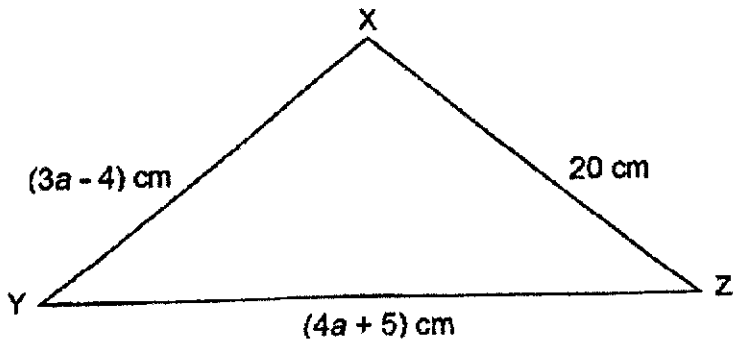
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26 Jane has 1 m of string. She cuts $\frac{1}{4}$ m of the string to tie a box. The remaining length of the string is cut into shorter pieces each measuring $\frac{1}{5}$ m. What is the maximum number of $\frac{1}{5}$ - m pieces that Jane have?

Ans : _____

27 The figure below shows an isosceles triangle XYZ, where XY = XZ.
Find length YZ.



Ans : _____ cm

Please do not write in the margin.

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28 The table below shows the number of books read by a group of students in a week. The number of students who read 3 and 4 or more books is not shown.

Number of Books	0	1	2	3	4 or more
Number of Students	50	70	30	?	?

Each statement below is either true, false or not possible to tell from the information given. For each statement, pick a tick (✓) in the correct column.

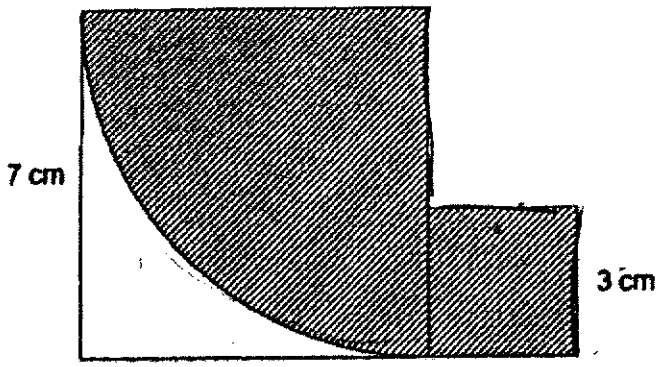
	Statement	True	False	Not Possible To Tell
(a)	$\frac{1}{3}$ of the students read 1 book in a week.			
(b)	Given that $\frac{2}{5}$ of the students read at least 2 books in a week, the number of students who read 3 books was the greatest.			

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29 The figure below is made up of 2 squares, with lengths 3 cm and 7 cm.

A quarter circle can be found within the big square. Find the perimeter of the shaded part. (Take $\pi = \frac{22}{7}$)



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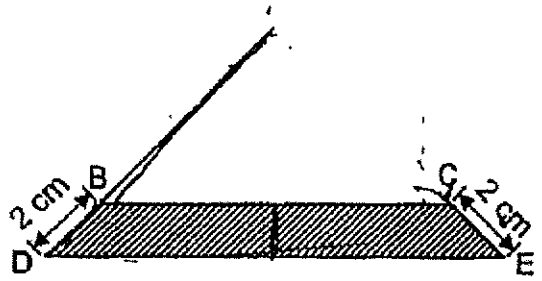
Ans : _____ cm

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30 In the figure, ABC and ADE are right-angled isosceles triangles.

BD = CE = 2 cm. The area of the shaded part is 22 cm^2.

Find the length of AD.



Please do not write in the margin.

Ans : _____ cm

End of Paper

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NAN HUA PRIMARY SCHOOL

PRELIMINARY EXAMINATION 2024

PRIMARY SIX

MATHEMATICS

PAPER 2

Time: 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Use dark blue or black ball point pen to write your answers in the space provided for each question.
6. Do not use correction tape/ fluid/ highlighter.
7. The use of calculators is allowed.

Marks Obtained

Section	Maximum Marks	Actual Marks
Paper 2	55	

Name : _____ ( )

Form Class : 6_____ **Teaching Group: 6M**_____

Date : 21 August 2024

This booklet consists of 16 printed pages.

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

1 (a) Use all the digits 2, 3, 5, 7, to form the greatest multiple of 5.

Ans: (a) _____

(b) Use all the digits 2, 3, 5, 7 to form the smallest odd number between 3000 and 4000.

Ans: (b) _____

2 Wen Xin scored an average of 82 marks in three Mathematics tests. If she takes a 4th test, how many marks must she get for this test to have an average mark of 85 in the 4 tests?

Ans: _____

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3 A shop sells three types of files. The table shows the number of files sold on Monday.

Type of file	Number of files sold
Clear	8
Clip	k
Ring	$4 + 6k$

(a) Find the total number of files sold by the shop on Monday. Express your answer in terms of k in the simplest form.

Ans: (a) _____

(b) If $k = 11$, find the total number of files sold by the shop on Monday.

Ans: (b) _____

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4 Elaine took a taxi from home to the shopping mall. Her taxi fare was based on the charges shown below.

First 1 km	$4.60
Every additional 400 m or less	$0.26
Every 45 seconds of waiting or less	$0.26

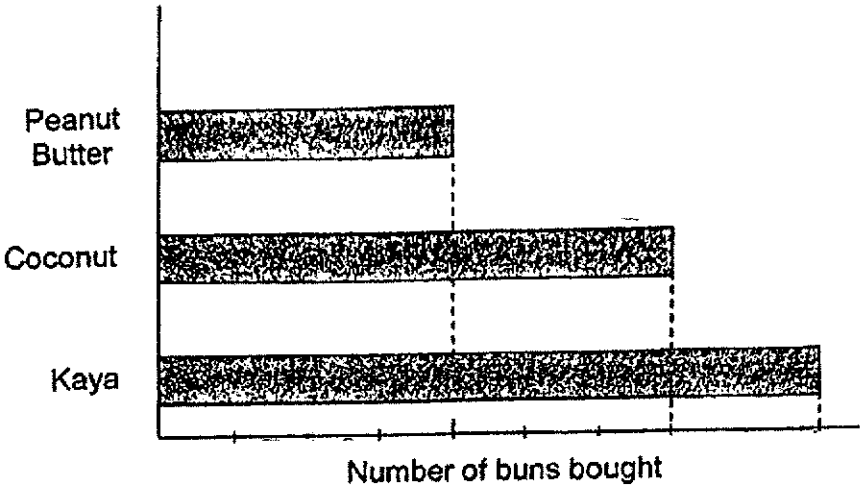
The taxi travelled a total distance of 4.7 km and stopped once at a traffic light for 1 minute. How much did Elaine pay for her taxi fare?

Please do not write in the margin.

Ans: $ _____

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5 George bought buns of 3 different flavours. The bar graph shows the number of each type of bun that he bought. The number of buns he bought is not shown on the scale.



The price of each coconut bun is $1.80. George paid $50.40 for the coconut buns. How many kaya buns did he buy?

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 Alice and Diana had some money each. The amount of money that Alice had was $\frac{1}{4}$ the amount of money Diana had. They wanted to buy the same dress each but Alice was short of $28.40 and Diana was short of $15.50. How much was the dress?

Ans: _____ [3]

7 Mr Lim bought 24 tubs of identical ice cream for $360. After a price increase in each tub of ice cream, he could only buy 20 tubs with the same amount of money. What was the percentage increase in the price of each tub of ice cream?

Ans: _____ [3]

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8 A carton of packet drinks cost $12. For every 15 cartons of packet drinks bought, a discount of 10% was given. Elisa bought a number of cartons of packet drinks for a charity event and she paid $1296. What was the most number of cartons Elisa bought?

Ans: _____ [3]

9 In a library, the ratio of the number of fiction books to the number of non-fiction books was 8 : 5. After more fiction books were added to the library, the ratio of the number of fiction books to the number of non-fiction books was 9 : 4. There were 12 600 fiction books in the end. How many fiction books were added?

Ans: _____ [3]

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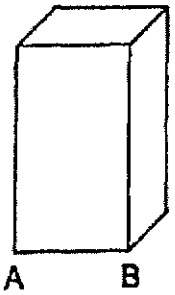
10 The distance between Town A and Town B is 150 km. At 11 am, Benny left Town A for Town B. At 11.30 am, Charlie left Town B for Town A. Benny's speed was $\frac{1}{2}$ of Charlie's speed. The 2 boys met each other when they were 90 km away from Town B. They did not change their speeds throughout their journey. Find Charlie's speed in km/h.

Ans: _____ [4]

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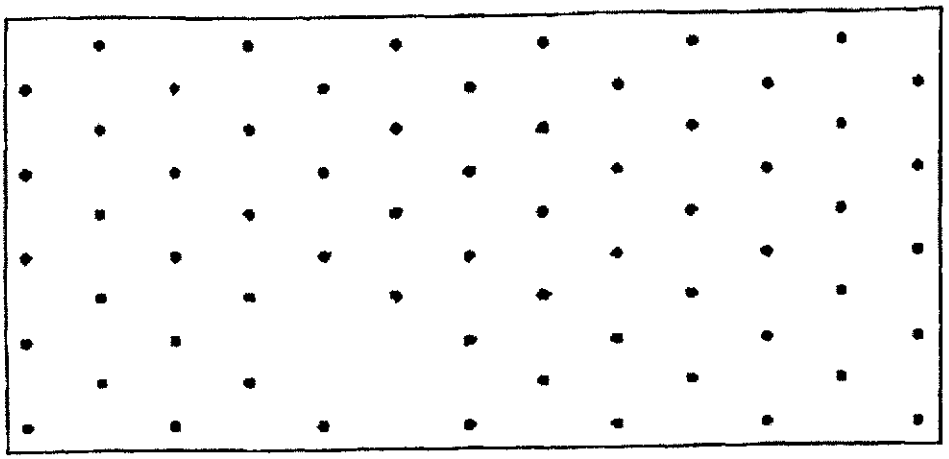
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11 (a) The figure below shows a square-base cuboid with a volume of 272 cm^3. Given that the height of the cuboid is 17 cm, find the length of AB.

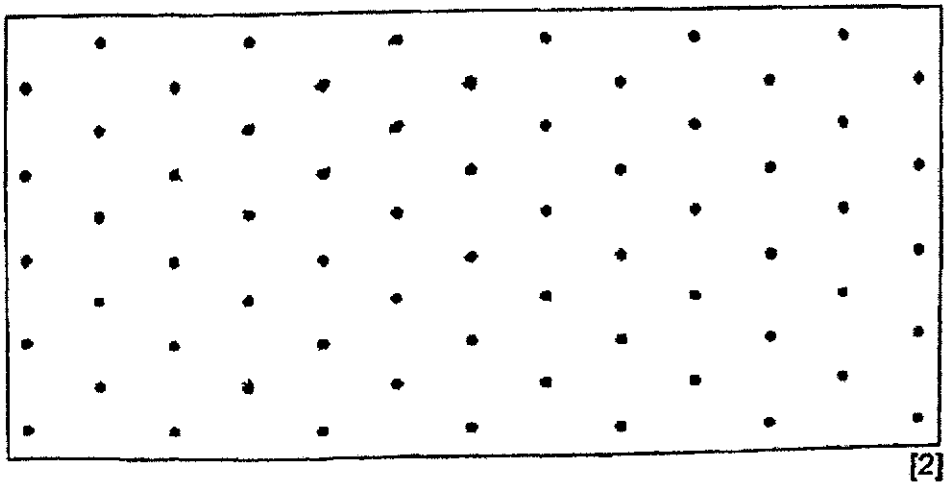


Ans: (a) _____ [2]

(b) The figure below shows Cuboid Y.



Draw a cuboid with a volume twice that of Cuboid Y on the isometric grid below.

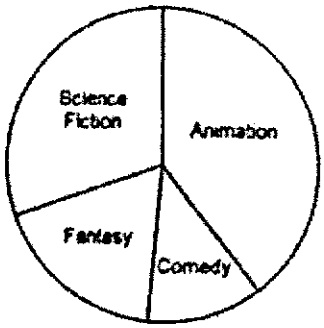


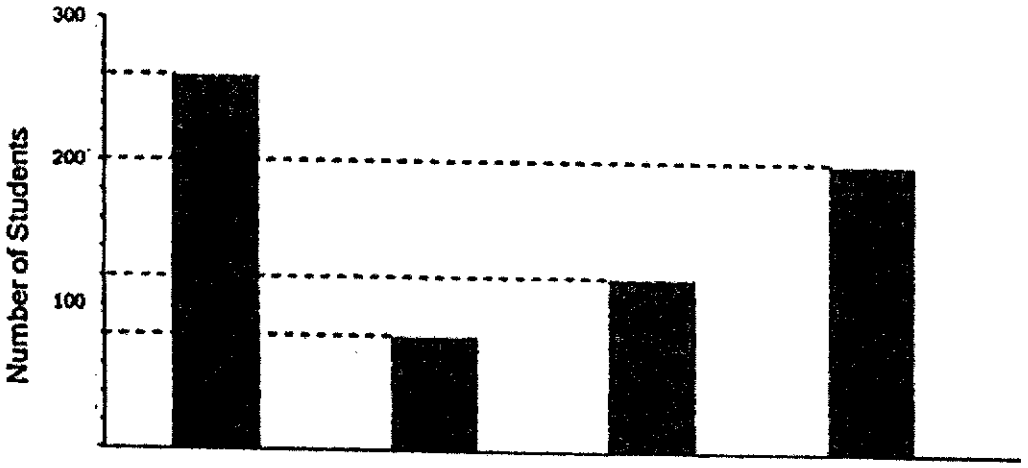
[2]

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12 The pie chart shows a group of students who voted for their favourite movie genre. Each student was allowed to vote only once. The same information is shown in a bar graph, but the names of the movie genres are not shown on the bar graph.





(a) How many students voted Comedy as their favourite movie genre?

Ans: (a) _____ [1]

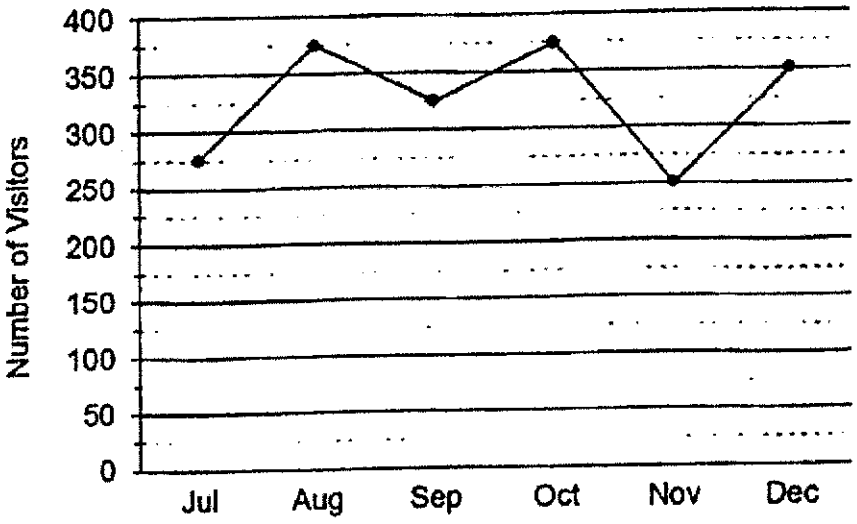
(b) What percentage of the total number of students voted Animation as their favourite movie genre? Express your answer in 1 decimal place.

Ans: (b) _____ [2]

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13 The graph shows the number of visitors to the Children's Museum from July to December.



(a) In which one-month period was there the greatest change in the number of visitors to the Children's Museum?

Ans: (a) _____ to _____ [1]

(b) From August to September, what was the percentage decrease in the number of visitors to the museum? Express your answer in 1 decimal place.

Ans: (b) _____ [2]

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14 A cubic container measuring 30 cm by 30 cm by 30 cm contains 9000 cm^3 of water. A metal block measuring 18 cm by 10 cm by 10 cm is placed horizontally into the container. The metal block sinks to the bottom of the container as shown in Figure A.

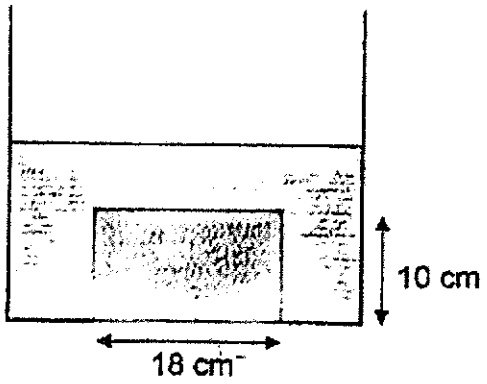


Figure A

(a) What is the height of the water level in Figure A?

Ans: (a) _____ [2]

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(b) The position of the metal block is changed such that it is now placed vertically in the container as shown in Figure B. What is the height of the new water level in Figure B?

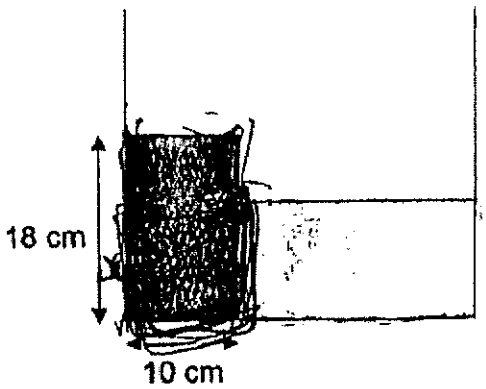


Figure B

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Ans: (b) _____ [2]

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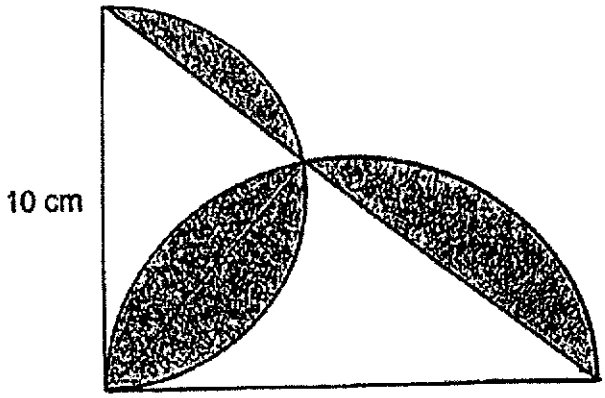
15 A group of tourists paid a total amount of \$2220 for the admission tickets to the Singapore Zoo. In the group, the ratio of the number of adults to the number of children to the number of senior citizens was 5 : 2 : 3. The ratio of the amount paid for all children to the amount paid for all senior citizens was 7 : 6. The amount paid for all senior citizens was $\frac{1}{4}$ the amount paid for all adults. Given that the price of an adult ticket was \$48, find the total number of people in the group.

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Ans: _____ [5]

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16 The figure below is made up of a right-angled triangle and 2 semicircles, with diameter 10 cm and 12 cm respectively. Find the total area of the shaded parts. (Take $\pi = 3.14$)

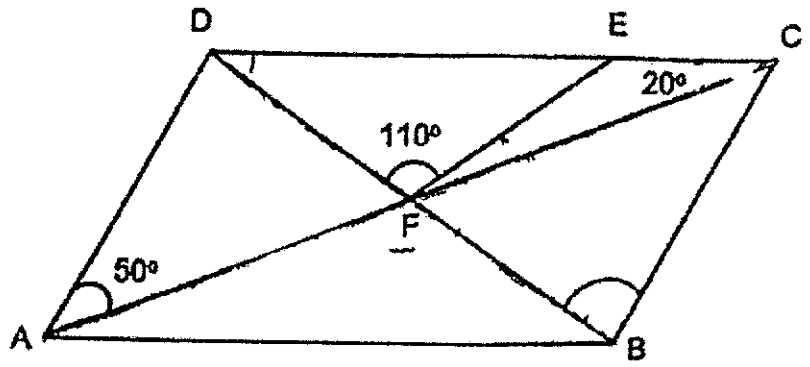


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Ans: _____ [4]

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17 In the figure below, ABCD is a parallelogram. AFC and DFB are straight lines. E is a point on CD such that DF = FE.



(a) Find ∠EFC

Ans: (a) _____ [3]

(b) Find ∠CBD

(b) _____ [2]

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End of Paper

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Nan Hua Primary School
PRELIM
Primary 6 Mathematics 2024
Answer Key

Paper 1 Booklet A

Questions 1 to 10 (1 mark each)
Questions 11 to 15 (2 marks each)

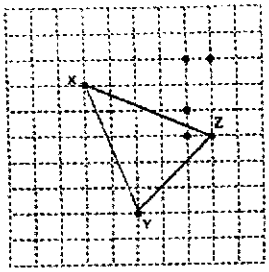
No.	Answer	No.	Answer	No.	Answer
1	(3)	6	(1)	11	(4)
2	(3)	7	(4)	12	(2)
3	(2)	8	(3)	13	(1)
4	(3)	9	(1)	14	(2)
5	(3)	10	(2)	15	(4)

Paper 1 Booklet B

Questions 16 to 20 (1 mark each)
Questions 21 to 30 (2 marks each)

No.	Solution
16	2.39
17	58
18	$\frac{1}{8}$
19	$\frac{22}{7}$ x 14 x 14 = 616 cm²
20	Total cubes = 8 (base) + 4 (middle) + 1 (top) = 13 Total volume = 13 x 1 cm³ = 13 cm³

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No.	Solution	No.	Solution
21		26	$1-\frac{1}{4}=\frac{3}{4}$ $\frac{3}{4}\div\frac{1}{5}=\frac{3}{4}\times\frac{5}{1}$ $=\frac{15}{4}$ $=3\frac{3}{4}\approx 3$
22	100% - 25% - 15% - 50% = 10% 10% x 290 = 29	27	3a – 4 = 20 a = 24 ÷ 3 = 8 Length YZ = 4 x 8 + 5 = 37 cm
23	(a) North-West (b) South-West		
24	\$4 x 6 = \$24 \$24 ÷ 2 = \$12		
25	∠BCD = 180° – 40° = 140° ∠BCF = 360° – (140° + 90°) = 130°		

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No.	Solution
28	(a) Not possible to tell (b) False
29	Arc length of quadrant $= \frac{1}{4} \times \frac{22}{7} \times 14$ = 11 cm Perimeter of shaded region = 11 + 7 + 4 + (3 x 3) = 31 cm

No.	Solution
30	By listing / Guess & Check $\frac{1}{2} \times 10 \times 10 = 50$ $\frac{1}{2} \times 12 \times 12 = 72$ 72 – 50 = 22 AD = 12 cm

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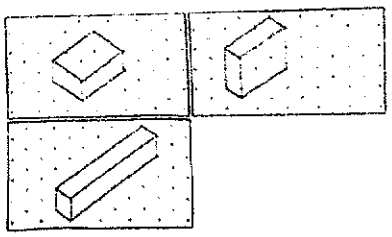
Paper 2

No.	Solution	No.	Solution
1	(a) 7325 (b) 3257	4	First 1 km = $4.60 Remaining distance = 3700 m 3700 ÷ 400 = 9 R 100 (10 groups of 400 m or less) $0.26 x 10 = $2.60 $4.60 + $2.60 + 2 x $0.26 = $7.72
2	4 x 85 = 340 3 x 82 = 246 340 – 246 = 94	5	Number of coconut buns = $50.40 ÷ $1.80 = 28 7 units = 28 1 unit = 28 ÷ 7 = 4 9 units = 9 x 4 = 36
3	(a) $8 + k + 4 + 6k$ $= 7k + 12$ (b) 7 x 11 + 12 = 89		

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No.	Solution	No.	Solution
6	3u = $28.40 - $15.50 = $12.90 1u = $12.90 ÷ 3 = $4.30 $4.30 + $28.40 = **$32.70**	8	$12 x 15 = $180 90% x $180 = $162 (15 cartons) 1296 ÷ 162 = 8 (groups) 8 x 15 = **120** (cartons)
7	$360 ÷ 24 = $15 (original price of each tub) $360 ÷ 20 = $18 (new price of each tub) $18 - $15 = $3 (price increase) $\frac{3}{15}$ x 100% = **20%**	9	F : NF Before 8 : 5 (32 : 20) After 9 : 4 (45 : 20) 45u = 12 600 1u = 12 600 ÷ 45 = 280 13u = 280 x 13 = **3640**

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No.	Solution	No.	Solution
10	Charlie had travelled 90 km when the 2 boys met Dist. travelled by Benny when they met = 150 – 90 = 60 km Dist. Benny travelled from 1130 to meet time = 90 ÷ 2 = 45 km (Since Benny's speed is half of Charlie's within the same timeframe) Dist. Benny travelled from 11 to 1130 = 60 – 45 = 15 km Benny's Speed = 15 km ÷ $\frac{1}{2}$ h = 30 km/h Charlie's Speed = 30 x 2 = **60 km/h**	11	(a) 272 ÷ 17 = 16 $\sqrt{16}$ = **4 cm** (b) Either of the 3 answers are correct 1. 2 units by 3 units by 1 unit 2. 1 unit by 3 units by 2 units 3. 1 unit by 6 units by 1 unit 

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No.	Solution
12	(a) **80** (b) 260 + 80 + 120 +200 = 660 $\frac{260}{660} \times 100\% \approx$ **39.4%**
13	(a) **Oct** to **Nov** or **October** to **November** (b) 375 – 325 = 50 $\frac{50}{375} \times 100\% \approx$ **13.3%**

Solution
(a) Total volume = 9000 + 18 x 10 x 10 = 10 800 cm^3 Height of water in Figure A = $\frac{10\,800}{30 \times 30}$ = **12 cm** (b) Base Area (less metal block) = 30 x 30 – 10 x 10 = 800 cm^2 Height of water in Figure B = 9000 ÷ 800 = **11.25 cm**

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No.	Solution	No.	Solution
15	Adults \$48 (30 pax) Child \$35 (12 pax) Senior \$20 (18 pax) A : C : SC : Total Ratio of the no. of people 5 : 2 : 3 : 10 Ratio for amount spent 24 : 7 : 6 : 37 37u = \$2220 1u = \$2220 ÷ 37 = \$60 Total amount for adults (24u) = \$60 x 24 = \$1440 No. of adults = \$1440 ÷ \$48 = 30 5u = 30 1u = 30 ÷ 5 = 6 10u = 6 x 10 = **60**	16	Area of small semi-circle = $\frac{1}{2}$ x 3.14 x 5 x 5 = 39.25 cm² Area of big semi-circle = $\frac{1}{2}$ x 3.14 x 6 x 6 = 56.52 cm² Area of Triangle = $\frac{1}{2}$ x 12 x 10 = 60 cm² Area of Shaded regions = 39.25 + 56.52 – 60 = **35.77 cm²**

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No.	Solution	No.	Solution
17	(a) $\angle DEF = (180 - 110) \div 2$ $= 35°$ $\angle FEC = 180 - 35$ $= 145°$ $\angle EFC = 180 - (145 + 20)$ $= \underline{15°}$	17	(b) $\angle CFB = 180° - (110° + 15°)$ $= 55°$ (Angles on a straight line) $\angle ADC = 180° - (50° + 20°)$ $= 110°$ (Sum of angles in a triangle) $\angle DCB = 180° - 110°$ $= 70°$ (Interior angles) $\angle ACB = 70° - 20°$ $= 50°$ $\angle CBD = 180° - (55° + 50°)$ $= \underline{75°}$ (Sum of angles in a triangle)

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