Temasek Primary School
Preliminary Examination
Primary Six
2023
MATHEMATICS
(PAPER 1 BOOKLET A)

Name: _____ ( ) Class: 6 _____

Date: 22 August 2023

Total Time for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers in the Optical Answer Sheet (OAS) provided.
5. The use of calculators is **NOT** allowed.
6. This booklet consists of 8 printed pages.

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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 in the Optical Answer Sheet. (20 marks)

1 What is the first common multiple of 6 and 9?

(1) 1

(2) 18

(3) 3

(4) 54

2 Which of the following decimals lies between $\frac{1}{5}$ and $\frac{1}{4}$?

(1) 0.20

(2) 0.24

(3) 0.25

(4) 0.28

3 The table shows the prices of curry puffs sold at four different shops.

Shop A	\$0.80 each
Shop B	\$10 for 8
Shop C	\$3.60 for 6
Shop D	\$8.40 for 10

Which shop sells the cheapest curry puffs?

(1) Shop A

(2) Shop B

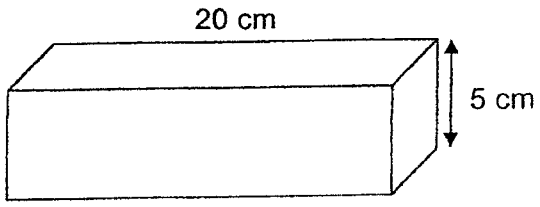
(3) Shop C

(4) Shop D

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4 The cuboid below has a square face of side 5 cm and length 20 cm.



What is its volume?

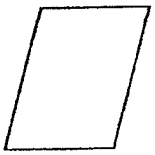
(1) 500 cm^3

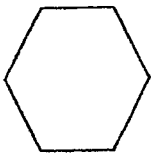
(2) 400 cm^3

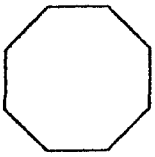
(3) 100 cm^3

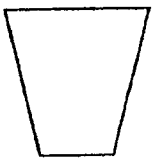
(4) 25 cm^3

5 Which one of the following shapes has only 1 line of symmetry?

(1) 

(2) 

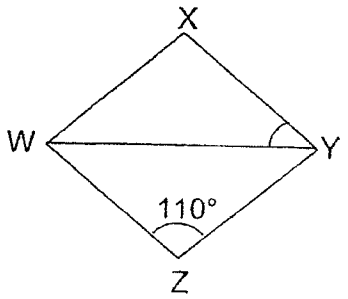
(3) 

(4) 

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6 WXYZ is a rhombus. Find $\angle XYW$.



(1) 35°

(2) 55°

(3) 70°

(4) 110°

7 3 years ago, Ken was $4p$ years old. How old will he be in 5 years' time?

(1) $(4p + 3)$ years old

(2) $(4p + 5)$ years old

(3) $(4p + 8)$ years old

(4) $12p$ years old

8 A tap can fill a tank to the brim in 20 minutes. What fraction of the tank is filled by the tap in one minute?

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

(2) $\frac{1}{20}$

(3) $\frac{1}{40}$

(4) $\frac{1}{60}$

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9 Express 0.3 as a percentage.

(1) 0.3%

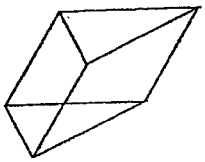
(2) 30%

(3) 3%

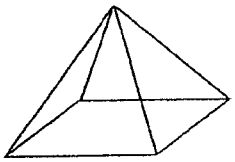
(4) 300%

10 Which of the following solids has the greatest number of faces?

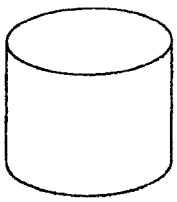
(1)



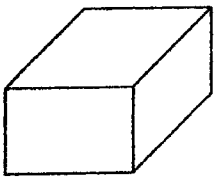
(2)



(3)



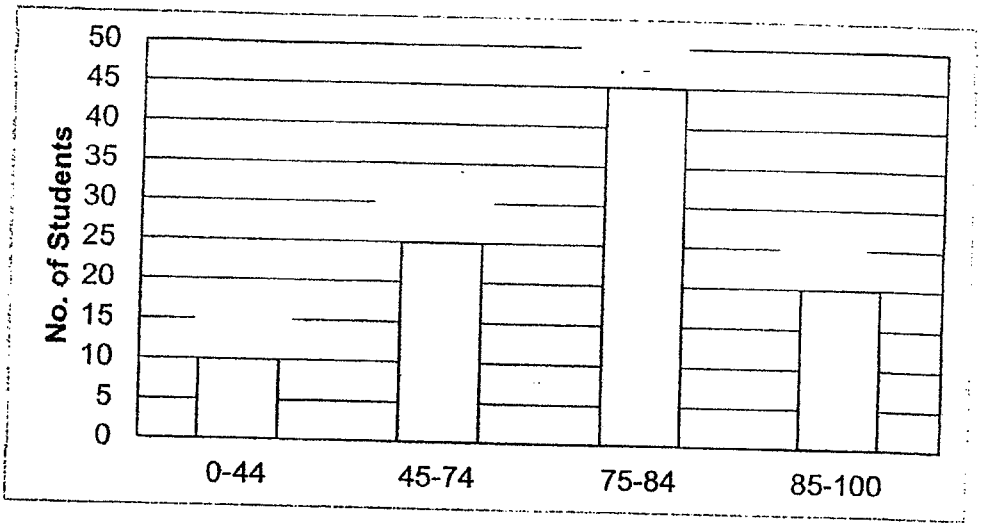
(4)



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11 The bar graph below shows the range of marks scored by a group of students in a Maths test.



What fraction of the pupils obtained at least 45 marks in the test? Give your answer in the simplest form.

(1) $\frac{9}{20}$

(2) $\frac{1}{4}$

(3) $\frac{13}{20}$

(4) $\frac{9}{10}$

12 John took 25 minutes to make 1 toy airplane. At 2.05 p.m., he finished making 4 toy airplanes. At what time did he start making the toy airplanes, given that he did not take any breaks in between?

(1) 12.25 p.m.

(2) 1.05 p.m.

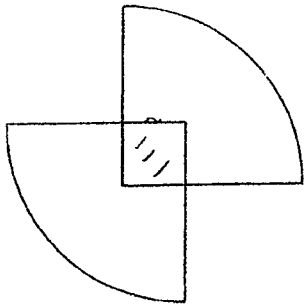
(3) 3.05 p.m.

(4) 3.45 p.m.

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13 The figure below is made up of 2 identical quadrants of radius 7 cm that overlapped each other. The shaded square has sides of 3 cm. What is the area of the whole figure? (Take $\pi = \frac{22}{7}$)



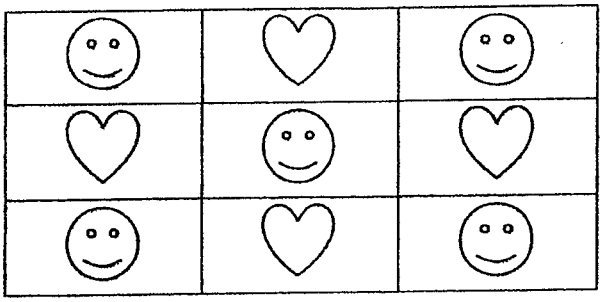
(1) 77 cm^2

(2) 68 cm^2

(3) 65 cm^2

(4) 59 cm^2

14 In the figure below, how many more smiley faces must be added to make the ratio of the number of smiley faces to the total number of shapes become 2 : 3 ?



(1) 1

(2) 2

(3) 3

(4) 4

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15 Fatimah had some two-dollar and five-dollar notes in her money box. She had 3 fewer two-dollar notes than five-dollar notes. She then exchanged 4 five-dollar notes for two-dollar notes. How many more two-dollar notes than five-dollar notes did she have in the end?

(1) 9

(2) 11

(3) 3

(4) 17

End of Booklet A

(Go on to Booklet B)

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Temasek Primary School
Preliminary Examination
Primary Six
2023
MATHEMATICS
(PAPER 1 BOOKLET B)

Name: _____ Class: 6 _____

Date: 22 August 2023

Total Time for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Use a dark blue or black ballpoint pen to write your answers in the space provided for each question.
5. Do not use correction fluid/tape or highlighters.
6. The use of calculators is **NOT** allowed.
7. This booklet consists of 8 printed pages.

/25

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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 Find the value of $96 - (52 + 20) \div 6 \times 2$.

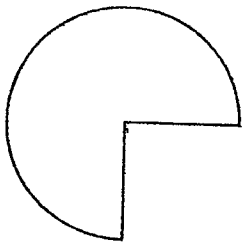
Ans : _____

17 The volume of a cube is 64 m^3. What is the area of one of its faces?

Ans : _____ m^2

18 The figure shows a $\frac{3}{4}$ circle of radius 14 cm. Find the perimeter of the figure.

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



Ans : _____ cm

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19 Find the value of $2x - \frac{x}{10}$ when $x = 6$. Give your answer as a mixed number in the simplest form.

Ans : _____

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20 The ratio of Steven's age to Cindy's age is 3 : 2. The ratio of Cindy's age to Juliet's age is 4 : 5. What is the ratio of Steven's age to Juliet's age? Give your answer in the simplest form.

Ans : _____

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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 questions which require units, give your answers in the units stated.

(20 marks)

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21 David wants to make an right-angled isosceles triangle prism as shown in Figure 1. On Figure 2, shade the parts that he needs to form the net of the prism.

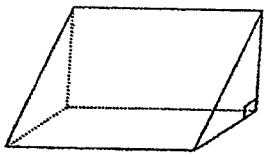


Figure 1

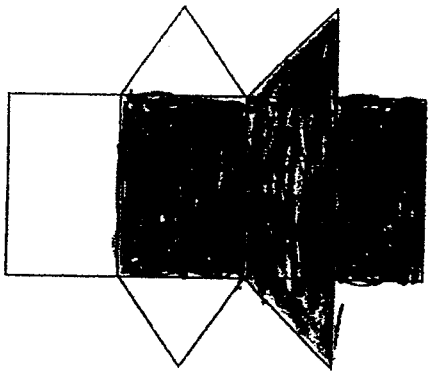
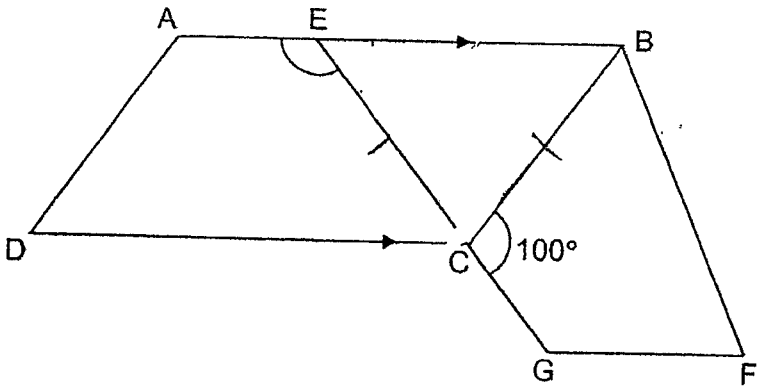


Figure 2

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22 In the figure below, ABCD is a parallelogram. ECG is a straight line and BCE is an isosceles triangle. BC = CE and ∠BCG = 100°. Find ∠AEC.

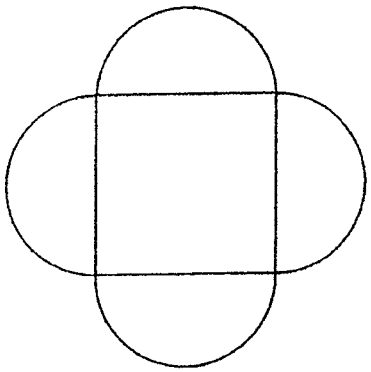


Ans : _____ °

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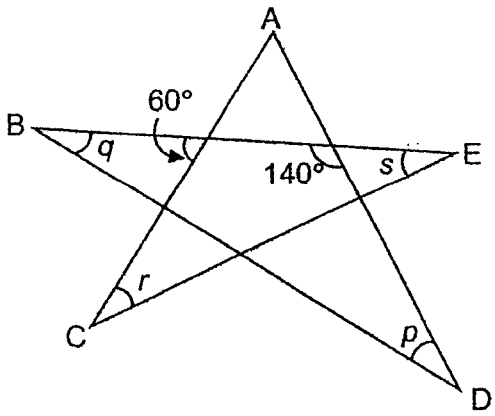
23 The figure below is made up of a square and 4 semicircles. The perimeter of the figure is 20π cm. What is the perimeter of the square?



Ans : _____ cm

---

24 The figure below is formed by five straight lines, AC, AD, BD, BE and CE. Find the sum of $\angle p$, $\angle q$, $\angle r$ and $\angle s$.



Ans : _____ °

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25 Jason left Town C for Town D at 12.50 p.m. He travelled at an average speed of 60 km/h. At 1.30 p.m., Peter left Town C for Town D, travelling along the same route at an average speed of 90 km/h. At what time did Peter overtake Jason?

Ans : _____ p.m.

26 The average mass of Bags W and X is 25 kg. The average mass of Bag X and Bag Y is 30 kg. The average mass of Bag Y and Bag Z is 28 kg.

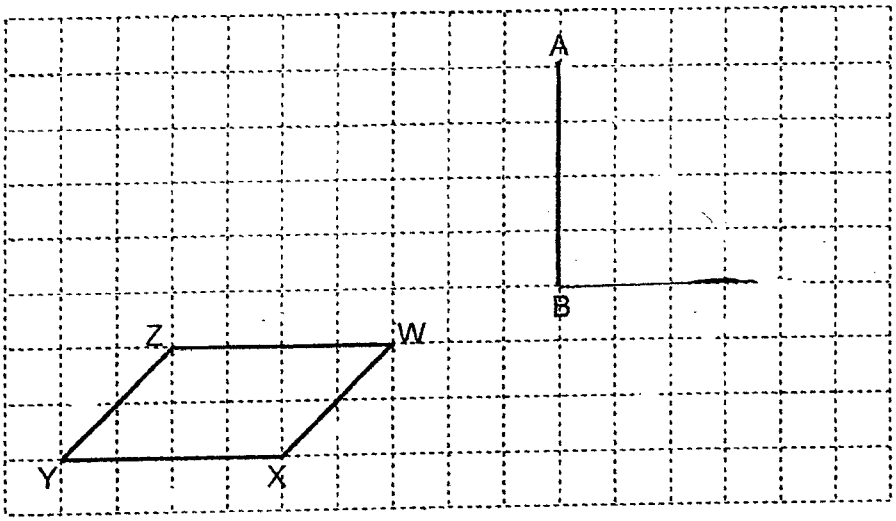
Each statement below is either true, false or not possible to tell from the information given. For each statement, put a tick (✓) in the correct column.

	Statement	True	False	Not Possible To Tell
(a)	The total mass of the 4 bags is 166 kg.			
(b)	The average mass of Bag W and Bag Z is 46 kg.			
(c)	Mass of Bag Z is 21 kg.			

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27 A parallelogram WXYZ is drawn on a square grid.



(a) Using the line AB, draw a triangle ABC such that it has the same perimeter as WXYZ and AB = BC.

(b) Find the ratio of area of WXYZ to the area of ABC.

Ans : _____

---

28 Sin Ling had 360 blue, green and white beads at first. After using $\frac{1}{4}$ of the blue beads, $\frac{2}{3}$ of the green beads and $\frac{8}{9}$ of the white beads, she had an equal number of each coloured beads left. Find the number of blue beads left.

Ans:_____

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29 At a shop, the price of 5 identical hats and 14 identical belts is the same as the price of 1 hat and 26 belts. Each hat costs $24 more than each belt. Find the cost of a hat.

Ans: $ _____

---

30 A group of boys scored an average of 58 points in a game. When 2 girls each scoring 64 points and 70 points respectively joined the group of boys, the average became 61. How many boys were there?

Ans : _____

End of Paper

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Temasek Primary School
Preliminary Examination
Primary Six
2023
MATHEMATICS
(PAPER 2)

Name _____( ) Class:

Date: 22 August 2023

Total Time: 1 hour 30 minutes

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Use a dark blue or black ballpoint pen to write your answers in the space provided for each question.
5. Do not use correction fluid/tape or highlighters.
6. The use of an approved calculator is allowed.
7. This booklet consists of 16 printed pages.

Paper	Max Mark
Paper 1 Booklet A	20
Paper 1 Booklet B	25
Paper 2	55
Total Mark	100

Parent's Signature/Date: _____

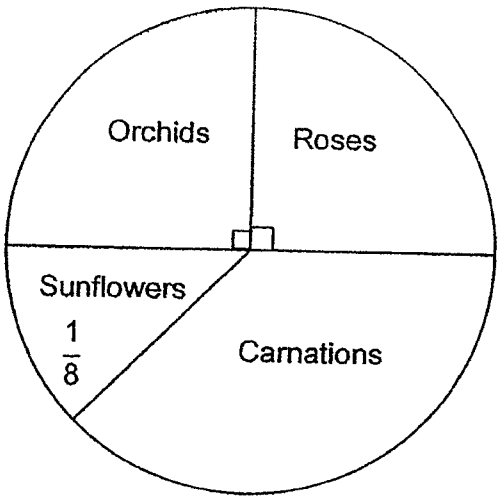
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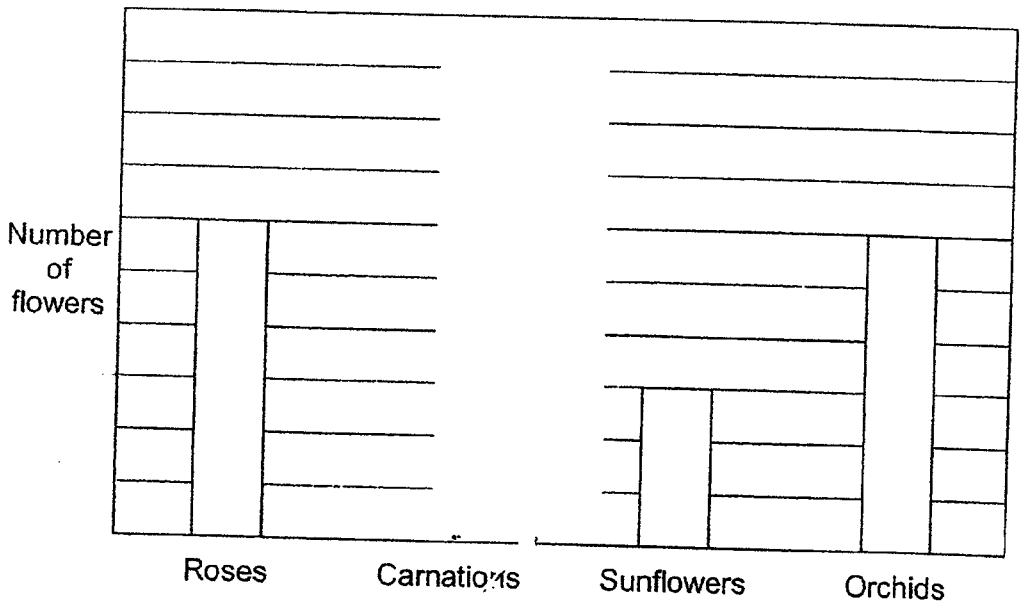
Questions 1 to 5 carry 2 marks each. Show your working clearly and write your answers in the spaces provided. For questions which require units, give your answers in the units stated.

(10 marks)

---

1 The pie chart and bar graph show the number of different types of flowers sold in a particular week. The number of flowers sold is not shown on the scale.





Draw the bar representing the number of stalks of carnations that were sold in that week in the bar graph above.

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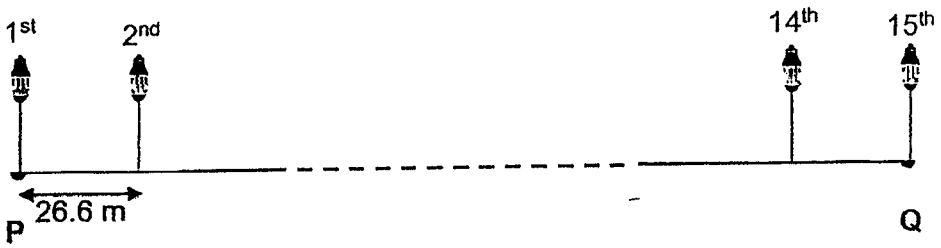
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2 Mrs Tan bought 24 identical packets of nuts for $30. After the price of each packet of nuts had increased, she could only buy 20 packets with the same amount of money. What was the percentage increase in the price of each packet of nuts?

Ans : _____ %

---

3 At first, 15 lamp posts were arranged in a row at an equal distance from point P to Q. The distance between 2 lamp posts is 26.6 m. Then, 5 more lamp posts were added. The lamp posts were rearranged at a new equal distance from point P to Q. Find the new distance between two lamp posts.



Ans : _____ m

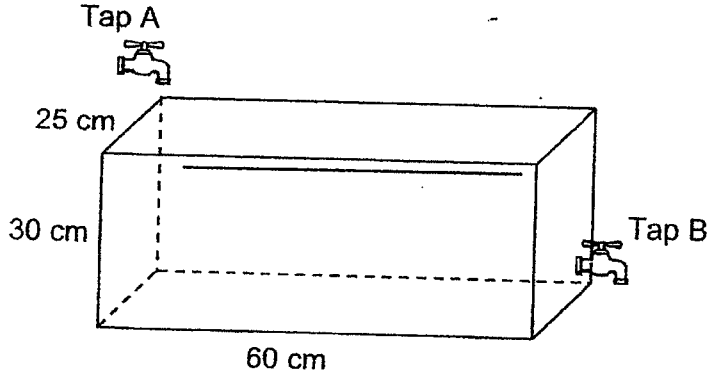
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4 In an Art Club, $\frac{5}{8}$ of the members are girls. $\frac{3}{4}$ of the girls and $\frac{1}{2}$ of the boys are in Primary 6. What fraction of the members in the Art Club is not in Primary 6? Give your answer in its simplest form.

Ans : _____

5 The figure shows taps A and B and an empty tank.



At 1.30 p.m., only tap A was turned on. Water flowed into the tank from tap A at a rate of 1.8 litres per minute. After 20 minutes, tap B was turned on. At 2 p.m., the tank was half-filled with water. How much water flowed out from tap B in one minute?

Ans : _____ ℓ

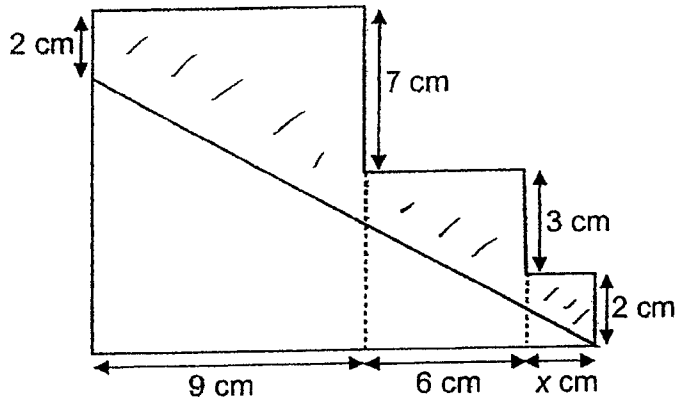
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For questions **6** to **17**, show your working clearly and write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question. (45 marks)

---

6 The figure is made up of three rectangles. A straight line drawn across the rectangles, divides the figure into two parts: shaded and unshaded.



(a) Find total area of the figure in terms of x.

Ans : _____ [2]

(b) Find the area of the unshaded part when $x = 2$.

Ans : _____ [1]

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7 Benedict and Samuel began jogging from the same starting point but in opposite directions along a straight line. They each jogged for half an hour. At the end of the jog, they were 10.5 km apart. Benedict's average speed was 120 m/min.

(a) How many kilometres did Benedict jog?

Ans : (a)_____ [1]

(b) What was Samuel's average speed in m/min?

Ans : (b)_____ [2]

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8 During a game, Eng Soon, Fauzi and Harish scored an average of 68.5 points. Gary joined the game and the average score of the four children became 70.

(a) How many points did Gary score?

Ans : (a)_____ [2]

(b) What percentage of the total score did Gary score? Round your answer to the nearest whole number.

Ans : (b)_____ [1]

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9 The table shows the number of books read by 42 students. Two of the numbers in the table are accidentally painted over.

Number of books read by each student	0	1	2	3	4
Number of students	0	10	9		

(a) On average, each student read 2.5 books. What was the total number of books read by all the students?

Ans : (a)_____ [1]

(b) How many students read 4 books each?

Ans : (b)_____ [2]

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10 In the figure, a piece of paper PQRS in the shape of a parallelogram is folded along 2 dotted lines, TS and UR as shown in Figure 1. In Figure 2, ∠PST = 32° and ∠QRS = 14°.

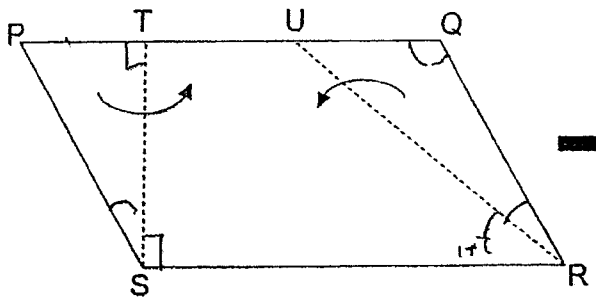


Figure 1

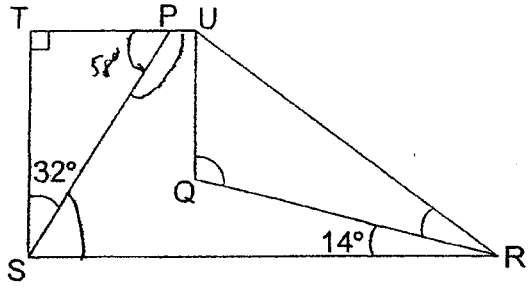


Figure 2

(a) Find ∠UQR in Figure 2.

Ans : _____ [1]

(b) Find ∠QRU in Figure 2.

Ans : _____ [2]

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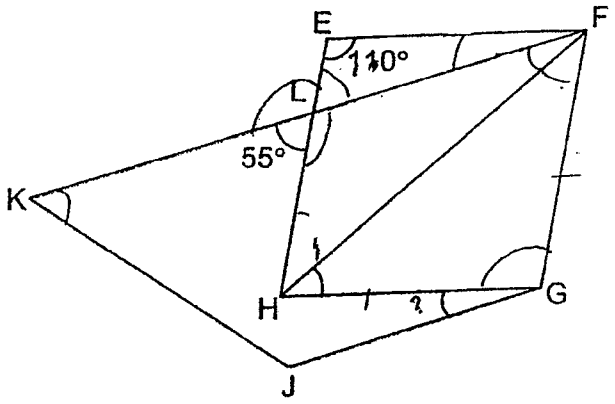
11 Elyse spent $\frac{2}{5}$ of her money and an additional $50 on a pair of shoes. She spent $\frac{3}{5}$ of the remainder and an additional $86 on a handbag. She spent half of the money that was left on food for $25. How much money did she have at first?

Ans : _____ [3]

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12 In the figure below, EFGH is a rhombus and FGJK is a trapezium. EH and KF are straight lines. ∠KLH = 55° and ∠HEF = 110°



(a) Find ∠KFH.

Ans : (a)_____ [2]

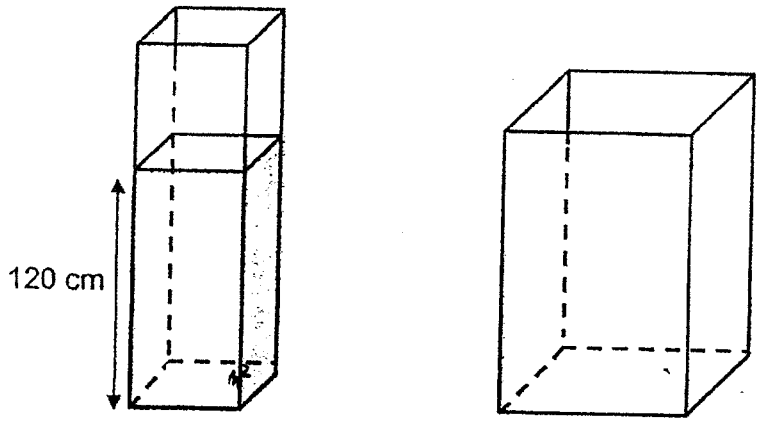
(b) Find ∠HGJ.

Ans : (b)_____ _____ [2]

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13 Containers X and Y are rectangular containers. The base area of Container X is 30 cm^2 and the base area of Container Y is 100 cm^2. Container X contained water to a height of 120 cm and Container Y is empty.



Container X Container Y

(a) Find the volume of water in Container X.

Ans : (a)_____ [1]

(b) John then poured some water from Container X into Container Y without spilling. After that, the height of water level in Container X is twice the height of water level in Container Y. How much water did John pour into Container Y?

Ans : (b)_____ [3]

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14 At a concert, 80% of the people were adults. 75% of the children at the concert were boys. There were 130 fewer boys than adults.

(a) What percentage of the people at the concert were boys?

Ans : (a)_____ [1]

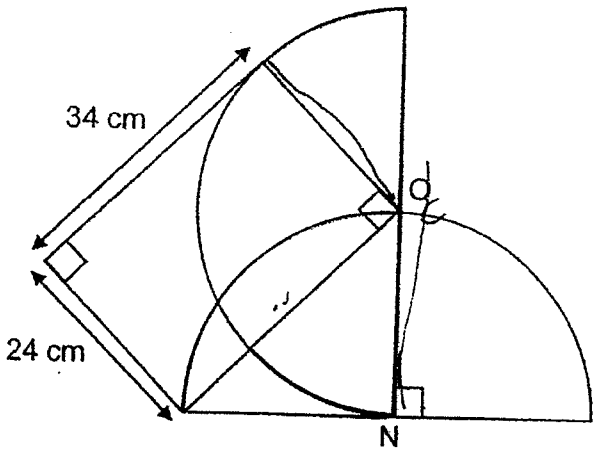
(b) The price of a child's ticket was 40% of an adult ticket. A total of $2640 was collected at the concert. How much did an adult ticket cost?

Ans : (b)_____ [3]

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15 The figure below shows 2 identical semicircles and a rectangle. O and N are the centres of the semicircles. The length and breadth of the rectangle are] 34 cm and 24 cm respectively. (Take $\pi = 3.14$)



(a) Find the perimeter of total shaded area.

Ans : (a) _____ [2]

(b) Find the total shaded area.

Ans : (b) _____ [3]

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16 Benedict had 130 more toy cars than Samuel in the beginning. Each of them gave Caleb some of their toy cars. The number of toy cars Benedict gave to Caleb was $\frac{3}{4}$ of the number of toy cars Samuel had at first. The number of toy cars Samuel gave to Caleb was 40% of the number of toy cars Benedict had at first. Both had an equal number of toy cars left. How many toy cars did Benedict have at first?

Ans : _____ [5]

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17 Hasif uses white and black sticks to form figures that follow a pattern as shown below.

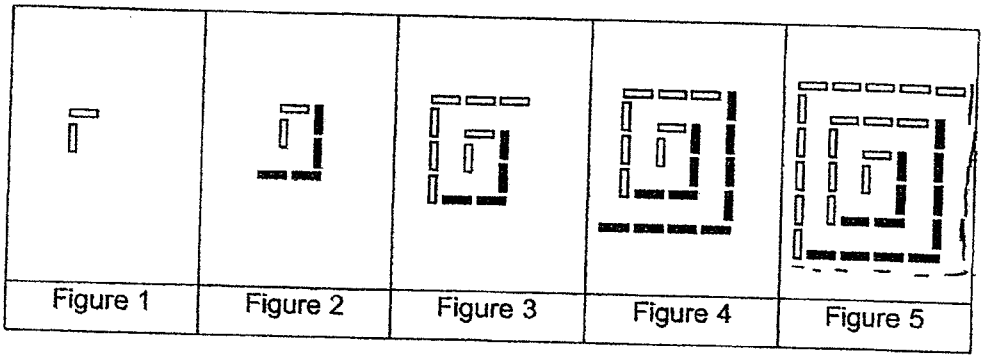


Figure 1	Figure 2	Figure 3	Figure 4	Figure 5

(a) The table shows the number of white and black sticks for the first five figures. Complete the table for Figure 6. [1]

Figure Number	1	2	3	4	5	6
Number of white sticks	2	2	8	8	18	(i) _____
Number of black sticks	0	4	4	12	12	(ii) _____
Total number of sticks	2	6	12	20	30	(iii) _____

(b) Which figure number has a total of 650 sticks?

Ans : (b)_____ [2]

(c) How many white sticks did he use for Figure 15?

Ans : (c)_____ [2]

End of Paper

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YEAR : 2023

LEVEL : PRIMARY 6

SCHOOL : TEMASEK PRIMARY SCHOOL

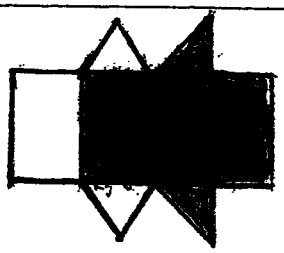
SUBJECT : MATHEMATICS

TERM : PRELIMINARY EXAMINATION

(BOOKLET A)

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

(BOOKLET B)

Q16	$96 - 72 \div 6 \times 2$ $96 - 12 \times 2$ $96 - 24 = 72$
Q17	$4 \times 4 \times 4 = 64$ $4 \times 4 = 16m^2$
Q18	$(\frac{3}{4} \times \frac{22}{7} \times 28) + 14 + 14$ $= 94cm$
Q19	$2 \times 6 - \frac{6}{10}$ $= 12 - \frac{3}{5}$ $= 11\frac{2}{5}$
Q20	S : C 3 : 2 6 : 4 C : J 4 : 5 S : J 6 : 5
Q21	 Figure 2
Q22	$180 - 80 = 100$ $100 \div 2 = 50$ $180 - 50 = 130°$

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Q23

2 Circumference $=20\pi$
1 Circumference $=10\pi$
Circumference= $\pi \times D$
D=10cm
4 ×10=40cm

Q24

180−60=120
180−120=60
180−140=40
60+40=100°

Q25

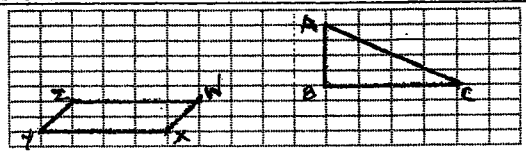
Jason:12.50(60km/h)
Peter:1.30(90km/h)
1h→90−60=30km
$\frac{1}{3}$ h→10km
$\frac{3}{4}$ → 40km
From 12.50 to 1.30→40min
$=\frac{40}{60}$h
Distance ahead $=\frac{60}{1}\times\frac{40}{60}$
=40km
$\frac{4}{3}$ h=1h 20min
1.30 p.m. + 1h 20min =2.50 p.m.

Q26

a)False
b)False
c)Not possible to tell

Q27

a)



b) 8 : 8
1 : 1
Ans :1 : 1

Q28

Blue :	Green :	White :
Used : Left : Total	Used : Left : Total	Used : Left : Total
1 : 3 : 4	2 : 1 : 3	8 : 1 : 9
	6 : 3 : 9	24 : 3 : 27

40 units =360
1 unit =9
3unit=3 × 9
= 27 blue beads left.

Q29

Let the cost of 1 belt be 1 unit
Cost of 1 hat = 1unit +$24
5 units + (5×24)+ 14units =1 unit + $24 +26 units
19 units + $120 = 27 units + 24
27 units − 19 units = 120 − 24
8 units = $ 96
1 unint = $12
Cost of 1 hat = $12 + 24 = $36

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Q30

No.of boys	Total no.of points	No.of boy and girls	Total no.of points
4	308+58=336	4+2=6	6×61=366

61−58=3

$(70-61)+(64-61)$ =9+3

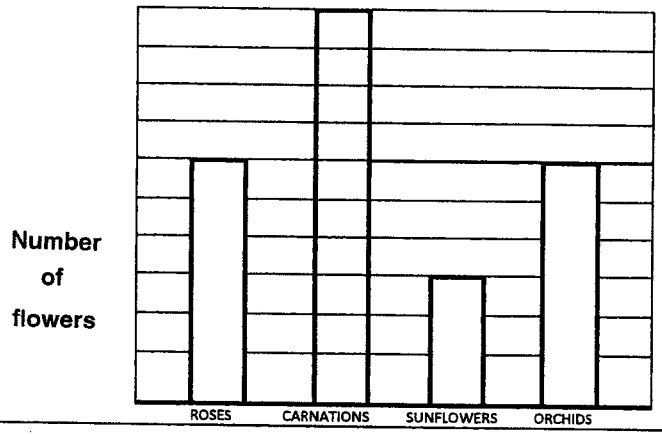
=12

$12 \div 3 = 4$

Ans : 4

PAPER 2

Q1



Q2

30 ÷ 24 =$1.25

$1.25×4 =$5

$5÷20=$0.25

$\frac{0.25}{1.25} \times \frac{100}{1}$ =20%

Q3

26.6 × 14 = 372.4 ÷ 19 = 19.6m

Q4

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

$= \frac{5}{32} + \frac{3}{16}$

$= \frac{11}{32}$

Q5

$60 \times 25 \times 15 = 22500\ cm^3$

=22.5L

1.8 × 30 = 54L

10min → 54L− 22.5L

= 31.5

1min→ 3.15L

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Q6		a)	$X \times 2 = 2X\text{cm}^2$ $6 \times 5 = 30\text{cm}^2$ $12 \times 9 = 108\text{cm}^2$ $108+30+2X\text{cm}^2 = (138+2X)\text{cm}^2$	b)	$12-2 = 10$ $^1/_2 \times 10 \times 17 = 85\text{cm}^2$	
Q7		a)	$120 \times 30 = 3600$ $= 3.6\text{km}$	b)	$10.5 - 3.6 = 6.9\text{km}$ $6.9 \div 30 = 0.23\text{km}$ $= 230\text{m/min}$	
Q8		a)	3 People $\rightarrow$ $68.5 \times 3 = 205.5$ $70 \times 4 = 280$ $280 - 205.5 = \underline{74.5}$	b)	$\frac{74.5}{280} \times 100$ $= 26.61\%$ $= 27\%$	
Q9		a)	$2.5 \times 42 = 105$	b)	$42 - 19 = 23$ $105 - 10 - 18 = 77$ *Do guess and check method* Student Read 4 books : 8 Books Read : 32 Student Read 3 books : 15 Books read : 45 Total : 77 Ans : 8	
Q10		a)	$90 - 32 = 58$ $32 + 90 = 122^0$	b)	$180 - 90 - 32 = 58$ $58 - 14 = 44$ $44 \div 2 = 22^0$	
Q11	$25 \times 2 = \$50$ $\$50 + \$86 = \$136$ $136 \div 2 = \$68$ $\$68 \times 5 = \$340$ $\$340 + \$50 = \$390$ $390 \div 3 = \$130$ $130 \times 5 = \$650$ She had \$650 at first					
Q12		a)	$180 - 110 = 70$ $70 \div 2 = 35$ $180 - 35 - 125 = 20^0$	b)	$180 - 110 = 70$ $70 \div 2 = 35$ $35 + 20 = 55$ $360 - 55 - 55 = 250$ $250 \div 2 = 125$ $125 - 110 = 15$	

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Q13		a)	$12 \times 30 = 3600\ \text{cm}^3$ =3.6L	b)	$\frac{3600}{100} = \frac{3600}{160}$ $= 22.5\ \text{cm}$ $22.5 \times 100 = 2250\ \text{cm}^3$
Q14		a)	$\frac{75}{100} \times \frac{20}{1} = 15\%$	b)	80% − 15% = 65% 65% → 130 1% → 2 80% →160 adults 20% →40 children 40% → $\frac{40}{100}$ =$\frac{2}{5}$ C : A 2 : 5 (2 units × 40)+(5 units × 160) =$2646 80 units +800 units = $2640 1 unit = $2640 ÷ 880 = $13 Adult ticket = 5 × 3 = $15
Q15		a)	r =24cm d =48 $\left(\frac{1}{2} \times \frac{3.14}{1} \times \frac{48}{1}\right) + B \times 25 + 34 - 24$ $= 75.36 + 72 + 10$ $= 157.36\ \text{cm}$	b)	Area of half area $= \left(\frac{1}{4} \times \frac{3.14}{1} \times \frac{24}{1} \times \frac{24}{1}\right) + \left(\frac{1}{2} \times \frac{24}{1} \times \frac{24}{1}\right)$ =164.16cm^2 Area shaded = $\left(\frac{1}{4} \times 3.14 \times 24 \times 24 \times 24\right) + 164.16$ =616.32cm^2

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<table>
<tr><td>Q16</td><td colspan="5">$\frac{3}{4} \times 100$units = 75 units
40% $\times$ 100units = $\frac{40}{100}$
= 40units
$\frac{40}{100} \times 130 = 52$
52units + 130 = 60units $-$ 52
60 units$-$ 52 = 25 units + 130
60 units$-$ 25 units = 130+52
35 units = 182
1units =(5.2 $\times$ 100)+ 130 =650</td></tr>
<tr><td rowspan="2">Q17</td><td></td><td>a)</td><td>(i) 18
(ii) 24
(iii) 42</td><td>b)</td><td>$\sqrt{650} \approx 24.5$
24 $\times$ 25 = 600
25 $\times$ 25 = 650
It is Fig. 25</td></tr>
<tr><td></td><td>c)</td><td>128</td><td></td><td></td></tr>
</table>

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