SA2

METHODIST GIRLS' SCHOOL (PRIMARY)

Founded in 1887

PRELIMINARY EXAMINATION 2021
PRIMARY 6
MATHEMATICS

PAPER 1
BOOKLET A

Total Time for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.
The use of calculators is **NOT** allowed.

Name: _____ ( )

Class: Primary 6._____

Date: 20 August 2021

/20

This booklet consists of 7 printed pages including this 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). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet. (20 marks)

---

1 $2\,021\,021 = 2\,000\,000 + 2 \times \square + 1021.$

What is the missing number in the box?

(1) 10

(2) 100

(3) 1000

(4) 10 000.

2 Which of the following is the same as 7030 mℓ ?

(1) 7 ℓ 3 mℓ

(2) 7 ℓ 30 mℓ

(3) 70 ℓ 3 mℓ

(4) 70 ℓ 30 mℓ

3 Which digit in 31.507 is in the tenths place?

(1) 1

(2) 0

(3) 3

(4) 5

(Go on to the next page)

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4 Which one of the following is the closest estimate of 14.6×38.4?

(1) 15×38

(2) 15×39

(3) 14×38

(4) 14×39

5 $\frac{3}{5}$ of Ali's marbles are blue and the rest are yellow.
What percentage of Ali's marbles are blue?

(1) 37.5%

(2) 40%

(3) 60%

(4) 62.5%

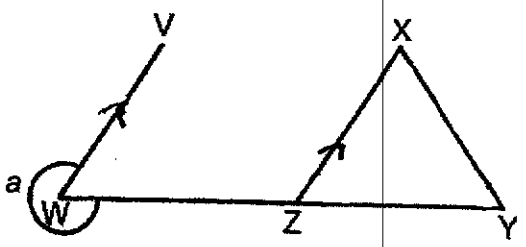
6 XYZ is an equilateral triangle. WZY is a straight line and WV is parallel to ZX. Find $\angle a$.

(1) 60°

(2) 120°

(3) 270°

(4) 300°



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7 Which of the following fractions is closest to 1?

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

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

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

(4) $\frac{6}{5}$

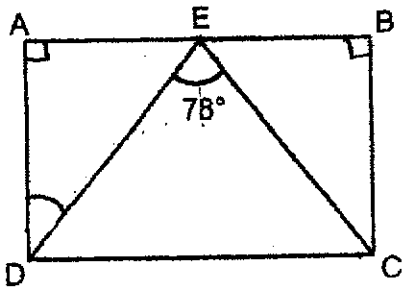
8 ABCD is a rectangle. E is the mid-point of AB and ∠DEC = 78°.
Find ∠ADE.

(1) 39°

(2) 45°

(3) 51°

(4) 78°



9 Chee Seng packed 216 pens into 3 boxes. The ratio of the number of pens in box A to the number of pens in box B to the number of pens in box C is 1 : 3 : 4. How many more pens were there in box B than in box A?

(1) 27

(2) 54

(3) 81

(4) 108

(Go on to the next page)

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10 In the programme guide shown below, one programme leads to another without any break in between.

Start Time	Programme
2.15 p.m.	Magic Show
2.45 p.m.	Art and Craft
4.00 p.m.	Music Appreciation
4.50 p.m.	Cooking Class

How much longer is the Art and Craft programme than the Music Appreciation programme?

(1) 25 min

(2) 50 min

(3) 1 h 5 min

(4) 1 h 15 min

11 The average mass of 3 bags of rice is 10 kg.
A fourth bag of rice weighing 6 kg is added to the total mass.
What is the average mass of the 4 bags of rice now?

(1) 9 kg

(2) 8 kg

(3) 7 kg

(4) 4 kg

(Go on to the next page)

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12 The table shows the charges for bicycle rental.

RENTAL RATE FOR 1 BICYCLE	
For the first 2 hours	\$3.50
For every additional $\frac{1}{2}$ hour	\$1.20

Dinesh rented 2 bicycles from 4 p.m. to 7 p.m. How much did he pay?

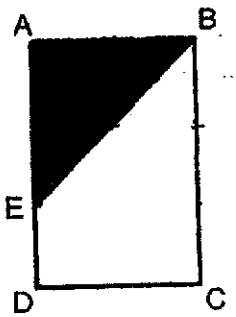
(1) \$5.90

(2) \$8.30

(3) \$11.80

(4) \$16.60

13 ABCD is a rectangle. AE is twice of ED and AE = AB.
What fraction of the figure is shaded?



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

(2) $\frac{1}{5}$

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

(4) $\frac{2}{5}$

(Go on to the next page)

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14 A pair of sandals costs $\$w$ in a shop. The cost of a pair of boots is \$25 more than the cost of 3 pairs of sandals. Find the cost of 3 pairs of boots.

(1) $\$3w$

(2) $\$(3w + 25)$

(3) $\$(6w + 75)$

(4) $\$(9w + 75)$

15 A printer started to print a set of documents at 10.00 a.m.
At 10.24 a.m., half of the set of documents was printed.
At what time would $\frac{7}{8}$ of the set of documents be printed?

(1) 10.30 a.m.

(2) 10.33 a.m.

(3) 10.42 a.m.

(4) 10.54 a.m.

(Go on to Booklet B)

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METHODIST GIRLS' SCHOOL (PRIMARY)

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PRELIMINARY EXAMINATION 2021
PRIMARY 6
MATHEMATICS

PAPER 1
BOOKLET B

Total Time for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.
The use of calculators is **NOT** allowed.

Name: _____ ( )

Class: Primary 6._____

Date: 20 August 2021

Paper 1 Booklet A	**/ 20**
Paper 1 Booklet B	**/ 25**
Paper 2	**/ 55**
TOTAL	**/ 100**

Parent's Signature: _____

This booklet consists of 8 printed pages including this page.

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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)

Do not write in this space

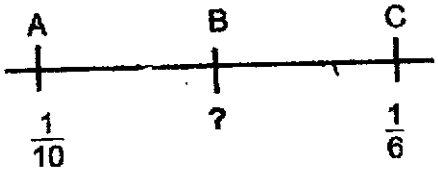
16 Find the value of 0.78×80.

Ans: _____

17 A number has 7 factors. Five of its factors are 1, 2, 4, 16 and 64. What are the other two factors?

Ans: _____ and _____

18 In the number line below, AB = BC. What is the fraction at point B? Give your answer in the simplest form.



Ans: _____

(Go on to the next page)

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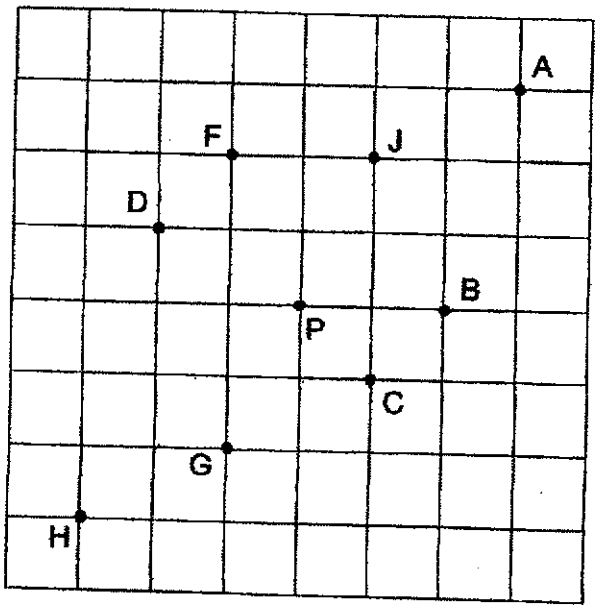
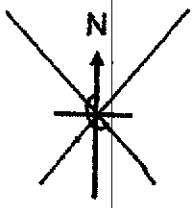
19 Find the value of $2y - \frac{y}{5}$ when $y = 7$.

Do not write in this space

Ans: _____

20 In the grid below, Siti is standing at Point P, facing North. She makes a 225° turn anticlockwise, and then a 90° turn clockwise.
Which point is she facing now?





Ans: Point _____

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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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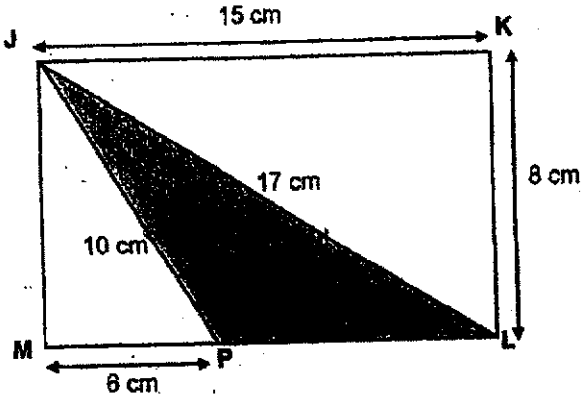
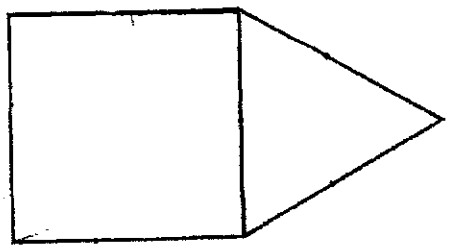
21 JKLM is a rectangle. Find the shaded area.



Ans: _____ cm^2

22 The figure below is made up of a square and an equilateral triangle. The area of the square is 81 cm^2. Find the perimeter of the figure.



Ans: _____ cm

(Go on to the next page)

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23 Three classes of pupils sold second-hand books for charity. They collected $7 for each fiction book and $5 for each picture book. The table shows the number of books sold by the three classes.

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Class	Number of books sold	
	Fiction Books	Picture Books
A	12	10
B	6	20
C	8	15

Which class collected the most money and how much was it?

Ans: Class _____, $_____

24 The solid figures below are made up of 1-cm cubes. How many 1-cm cubes must be removed from Figure X to form Figure Y?

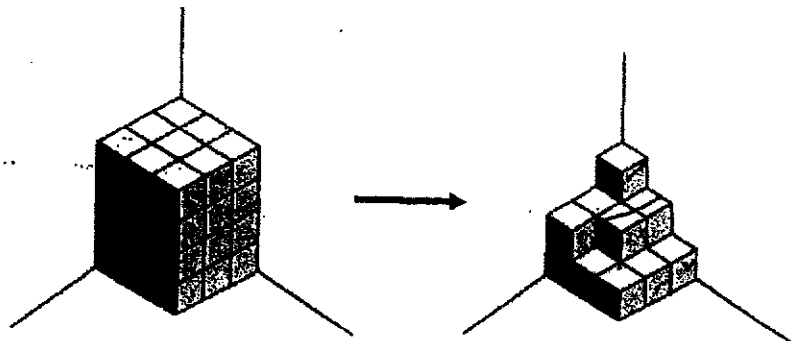

Figure X Figure Y

Ans: _____

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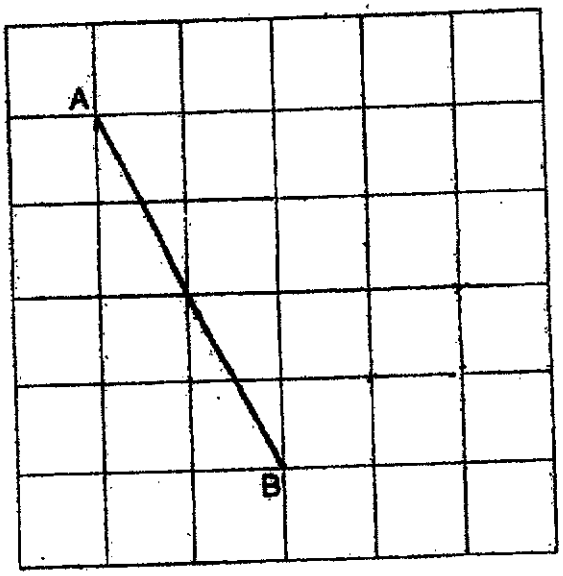
25 In the grid below, the line AB has been drawn for you.

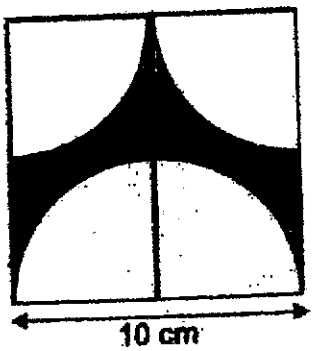
(a) Draw an isosceles triangle, such that AB = AC.
Label point C clearly.

(b) Measure BC.



Ans: (b) _____ cm

26 The figure shows a semicircle and 2 quarter circles drawn inside a square. Find the area of the shaded region.
Express your answer in terms of π.



Ans: _____ cm^2

(Go on to the next page)

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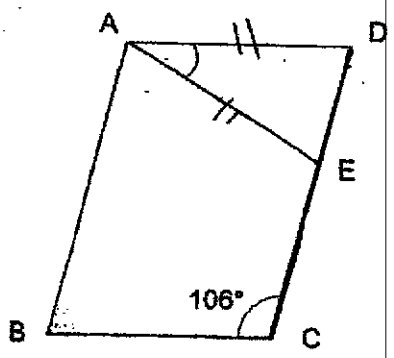
27 Mrs Lim bought some apples. She gave the fruit seller $50 and received $14 change. How many apples did she buy?

Do not write in this space

Ans: _____

28 ABCD is a parallelogram and AD = AE. Find ∠DAE.



Ans: _____°

(Go on to the next page)

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29 Mrs Chan paid $600 for a vacuum cleaner after a discount of 25%. What was the price of the vacuum cleaner before discount?

Do not write in this space

Ans: $ _____

30 The pupils in a school are divided equally into Group X and Group Y. The ratio of the number of boys to the number of girls in Group X is 3 : 1 and in Group Y, it is 1 : 2. What is the ratio of the total number of girls to the total number of pupils?

Ans: _____

End of Paper

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METHODIST GIRLS' SCHOOL (PRIMARY)

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PRELIMINARY EXAMINATION 2021
PRIMARY 6
MATHEMATICS

PAPER 2

Duration: 1h 30 min

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.
The use of an approved calculator is expected, where appropriate.

Name: _____ ( )

Class: Primary 6._____

Date: 20 August 2021

55

Parent's Signature: _____

This booklet consists of 13 printed pages including this page.

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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)

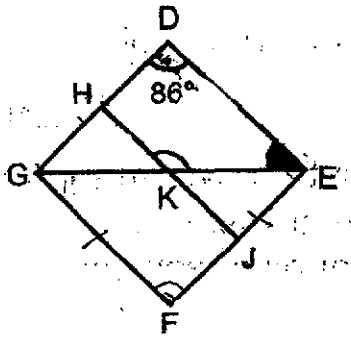
Do not write in this space

1 A cup is $\frac{2}{5}$-filled with water. It is then poured into an empty jug which has a volume that is three times that of the cup. What fraction of the jug is filled with water?

Ans: _____

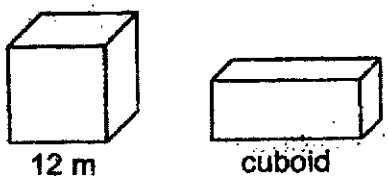
2 DEFG is a rhombus. HJ is parallel to DE and GF. ∠GDE = 86°.

Find ∠HKE.



Ans: _____ °

3 The length of each side of a cube is 12 m. The volume of the cube is twice the volume of a cuboid. Find the volume of the cuboid.



Ans: _____ m^3

(Go on to the next page)

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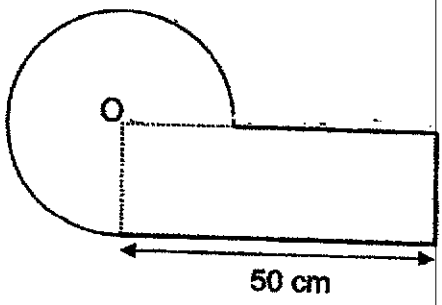
4 The ratio of the number of ten-cent coins to the number of twenty-cent coins in a purse was 3 : 5. When 60 twenty-cent coins were removed, there were an equal number of ten-cent coins and twenty-cent coins. How many ten-cent coins were there in the purse at first?

Do not write in this space

Ans: _____

5 The figure is made up of a 3 quarter circles and a rectangle.
O is the centre of the circle and the diameter of the circle is 14 cm.

Find the perimeter of the figure. (Take $\pi = \frac{22}{7}$)



Ans: _____ cm

(Go on to the next page)

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

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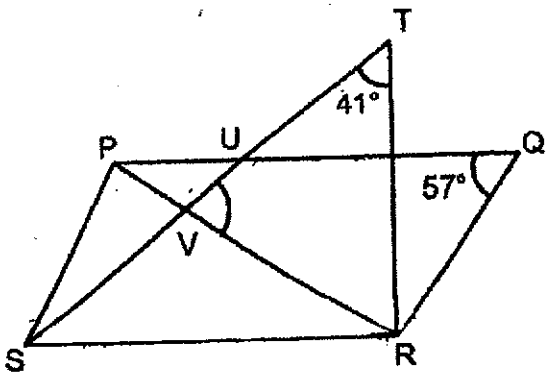
6 PQ is parallel to SR. TR is perpendicular to SR and PR is perpendicular to RQ. Find ∠TVR.



Ans: _____ [3]

7 Mei Ling bought $\frac{7}{8}$ m of ribbon to make some bows. She needed $\frac{3}{20}$ m of ribbon to make one bow.

(a) How many bows can she make?

(b) What was the length of ribbon left? Give your answer in the simplest form.

Ans: (a) _____ [1]

(b) _____ [2]

(Go on to the next page)

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8 Three teachers accompanied a group of 38 pupils to an amusement park. The ticket for a child cost $y. An adult ticket cost $2 more than a child's ticket.

(a) Find the total amount paid for all. Express your answer in terms of y.

(b) The total amount paid was $211. What was the cost of a child's ticket?

Do not write in this space

Ans: (a) _____ [2]

(b) _____ [2]

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9 The line graph below shows the number of tracksuits sold in a shop from January to June.

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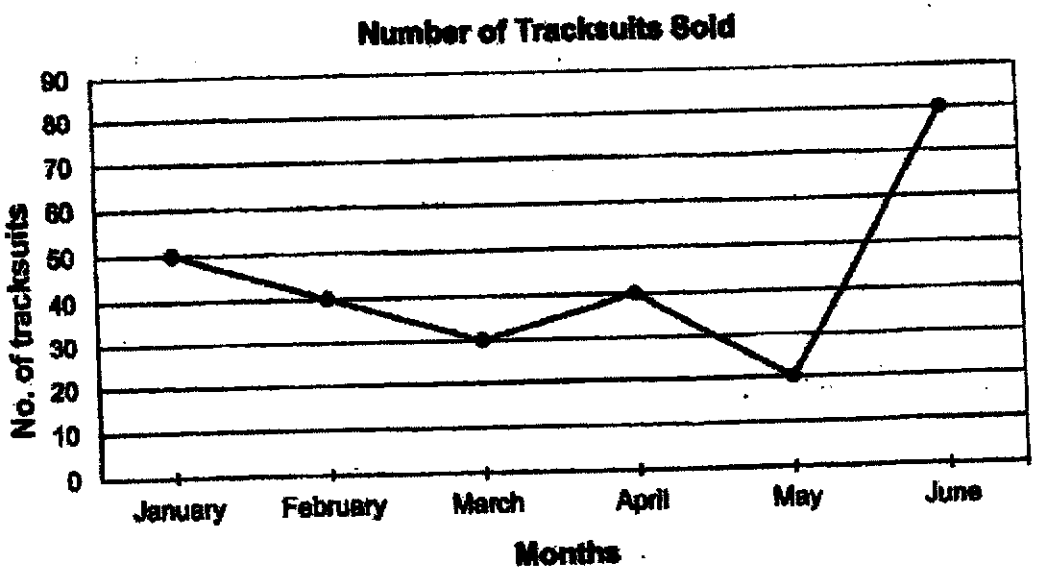

(a) In which 2 months were the sale of tracksuits sold from January to June above the average number of tracksuits sold during that same period?

(b) What was the percentage increase in the sale of tracksuits from May to June?

Ans: (a) _____ and _____ [1]

(b) _____ [2]

(Go on to the next page)

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10 The table and the bar graph below show the distribution of all Primary 5 pupils in the different CCA groups. The percentage of pupils who joined Clubs was covered by a blot of ink.

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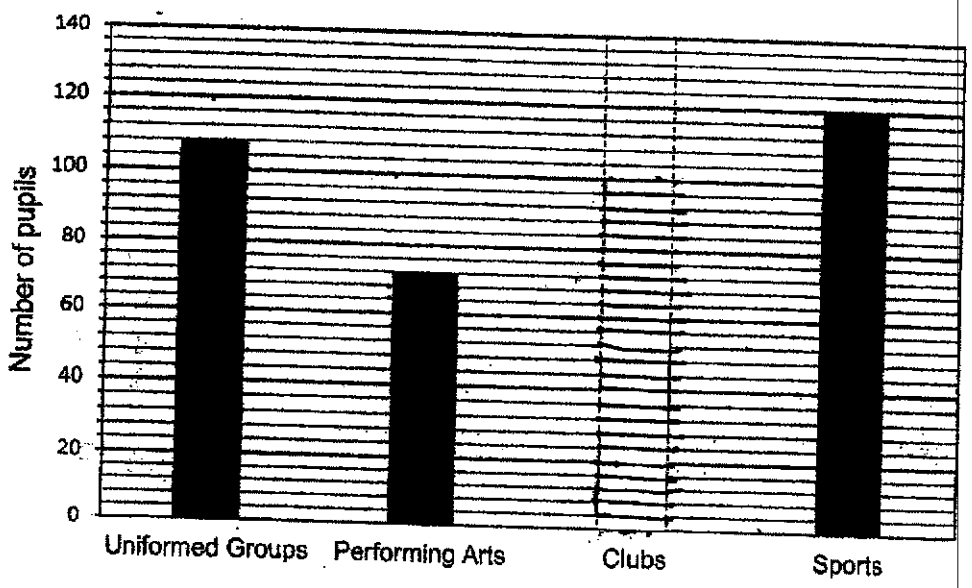
Types of CCA	Percentage of pupils
Uniformed Groups	27
Performing Art	18
Clubs	[redacted]
Sports	30



(a) What was the total number of pupils in Primary 5?

(b) Draw the bar in the graph above for the number of pupils in Clubs. [2]

Ans: (a) _____ [2]

(Go on to the next page)

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11 During a sale, Ban Meng bought 10 identical plates. His aunt bought 6 such plates. She also bought 4 mugs at $3.20 each. Altogether, she spent $2.40 less than Ban Meng. How much did Ban Meng and his aunt spend altogether?

Do not writ in this spa

Ans: _____ [3]

12 In a test, the average class score was 77 marks. Mr Lim discovered that he had recorded 14 students' marks wrongly. After adding 3 marks to each of these students, the average class score became 79. How many students were there in the class?

Ans: _____ [3]

(Go on to the next page)

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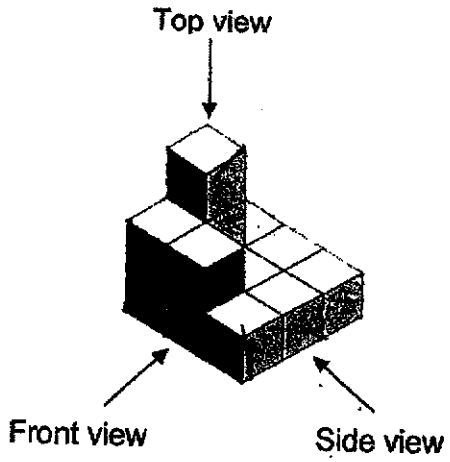
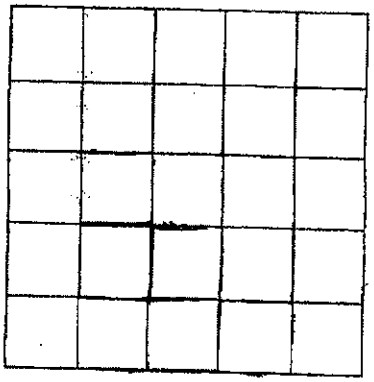
13 The solid below is made up of 13 1-cm cubes.

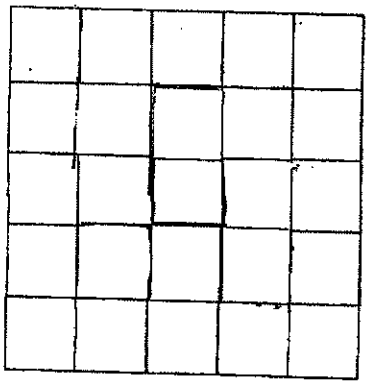
(a) Draw the Front view and Top view of the solid in the grid provided.

(b) The whole solid is completely dipped into a pot of red paint.
Find the total area of the solid that has red paint.





Front view [1]



Top view [1]

Do not write in this space

Ans: (b) _____ [2]

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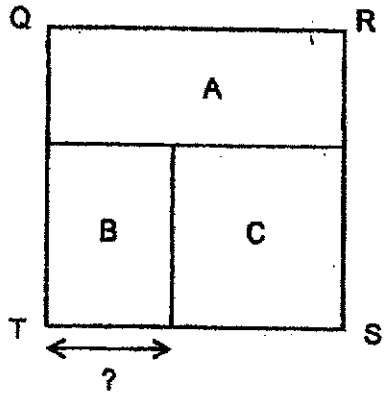
14 The square QRST is made up of two rectangles and a square.
The ratio of the area of Rectangle A to the area of Rectangle B is 5 : 3.
The ratio of the area of Rectangle B to the area of Square C is 2 : 3.
The area of square QRST is 625 cm^2. Find the breadth of Rectangle B.

Do not write in this space



Ans : _____ [4]

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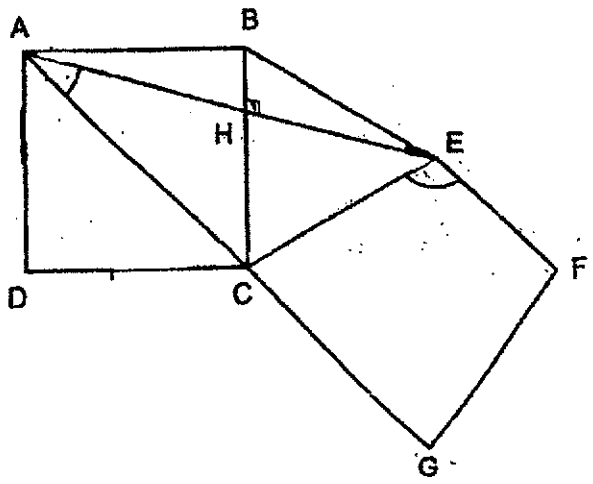
15 ABCD is a square and BCE is an equilateral triangle.
AEFG is a trapezium and AG is parallel to EF.

(a) Find ∠EAC.

(b) Find ∠CEF.



Ans: (a) _____ [2]

(b) _____ [1]

(c) The figure above is not drawn to scale. Each of the statements below is either true, false or not possible to tell from the information given.
For each of the statement, put a tick (✓) to indicate your answer.

Statement	True	False	Not possible to tell
ABEC is a trapezium.			
∠CEF is greater than ∠EFG.			
∠ECG + ∠FGC = 180°			

[2]

(Go on to the next page)

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16 The figure is made up of shaded and unshaded squares.

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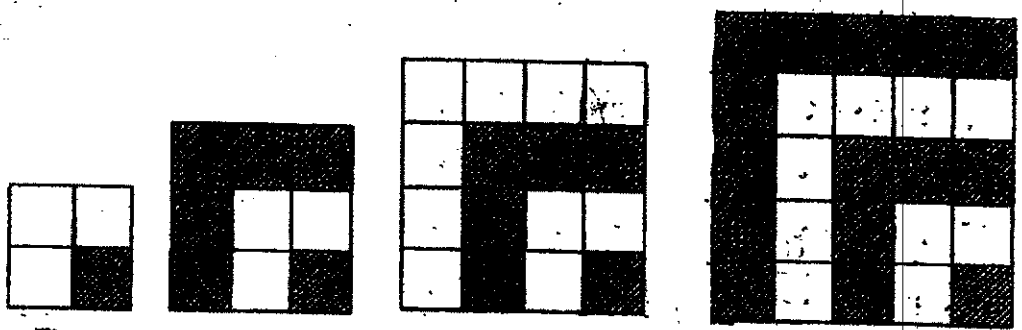

Figure 1 Figure 2 Figure 3 Figure 4

Figure number	Number of shaded squares	Number of unshaded squares	Total number of squares
1	1	3	4
2	6	3	9
3	6	10	16
4	15	10	25
5	(ai) _____	(aii) _____	36

(a) Complete the table for Figure 5. [1]

(b) There are a total of 81 squares. How many shaded and unshaded squares are there?

Ans: (b) Shaded _____ Unshaded _____ [3]

(Go on to the next page)

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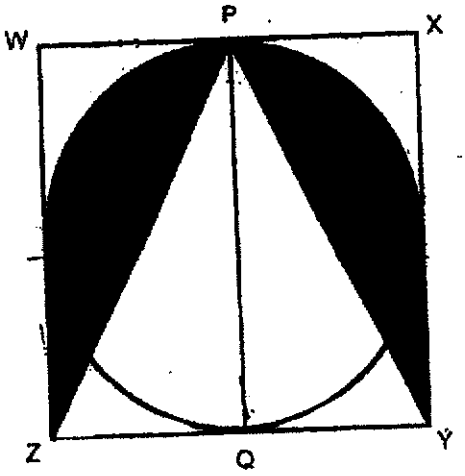
Do not write in this space

17 The figure below shows a circle enclosed in a square, WXYZ, of side 40 cm. WP = PX and ZQ = QY. Find the area of the shaded parts. (Take $\pi = 3.14$)



Ans: _____ [5]

End of paper

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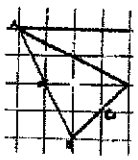
ANSWER KEY

YEAR : 2021
LEVEL : PRIMARY 6
SCHOOL : MGS
SUBJECT : MATHEMATICS
TERM : PRELIMINARY

BOOKLET A (PAPER 1)

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

BOOKLET B (PAPER 1)

Q16	62.4	Q17	8 and 32
Q18	$\frac{2}{15}$	Q19	$2 \times 7 - \frac{7}{5}$ $= 14 - \frac{7}{5}$ $=14 - 1.4 = 12.6$
Q20	Point H	Q21	36 cm2
Q22	9 + 9 + 9 + 9 + 9 = 45 cm	Q23	Class B , $142 Fiction – 6 x 7 = 42 Picture – 20 x 5 = 100 Total – 100 + 42 = 142
Q24	Total – 9 x 4 = 36 Total – 9 + 5 + 1 = 15 36 – 15 = 21	Q25	a)  b) 3.6cm
Q26	$100 - \pi \times 5 \times 5 = (100 - 25\pi)$	Q27	4 apples = $9 36 ÷9 = 4 4 x 4 = 16
Q28	180° -106° = 74° <DAE - 180° - 74° - 74° = 32°	Q29	100% - 25% = 75% 75% → 600 25% → 600 ÷ 3 = 200 100% → 200 x 4 = $800
Q30	Total girls --- 3 + 8 = 11 Total Pupils --- 12 + 12 = 24 G : T = 11 : 24		

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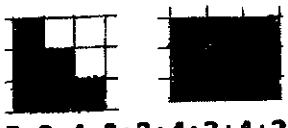
PAPER 2

Q1	Vol of water injug → $\frac{2}{5} \div 3$ $= \frac{2}{15}$	Q2	<KHD → 180° - 86° = 94° <HKE → 360° - 94° - 47° - 86° =133°
Q3	Vol of cube → 12 x 12 x 12 = 1728 Vol of cuboid → 1728 ÷2 = 864 m3	Q4	5 -3 = 2 2u = 60 1u = 60 ÷ 2 = 30 3u = 30 x 3 = 90
Q5	$\frac{3}{4}$ arc → $\frac{22}{7} \times \frac{3}{4} \times 14 = 33$ 14 ÷ 2 = 7 50 – 7 = 43 Perimeter → 33 + 50 + 7 + 43 = 133 cm	Q6	180° - 57° = 123° 123° - 90° = 33° 180° - 41° - 90° = 49° 180° - 49° - 33° =98° 180° - 98° = 82°
Q7	a) 1 bow = $\frac{3}{20}$ $\frac{7}{8} \div \frac{3}{20} = 5\frac{5}{6}$ ANS : 5 b) $5 \times \frac{3}{20} = \frac{3}{4}$ Lef + → $\frac{7}{8} - \frac{3}{4} = \frac{1}{8}$m	Q8	a) 3T + 38P =3A + 38C 1c—Y 38c – Y x 38 = 38y 1A – Y + 2 3A – (Y+2) x 3 = 3Y+6 Total – 38Y + 3y + 6 = $(41Y + 6) b) 41Y + 6 = 211 41Y = 211 – 6 = 205 (1c)Y = 205 ÷ 41 = $5
Q9	a) Total – 50 + 40 + 30 + 40 +20 + 80 = 260 Average – 260 ÷ 6 = $43\frac{1}{3}$ ANS : January and June b) 80 – 20 = 60 $\frac{60}{20} \times 100 = 300\%$	Q10	a) 27 + 18 + 30 = 75 75% → 108 + 72 + 120 = 300 25% -- 300 ÷ 3 = 100 (all p5) 100% -- 100 x 4 = 400 b) Clubs → 400 – 108 – 72 – 120 = 100
Q11	76 – 2.40 = $73.60	Q12	3 x 14 = 42 79 – 77 = 2 42 ÷ 2 = 21
Q13	a)  b) 5+3+4+2+3+4+3+4+2+3+4+3+2 =42cm2	Q14	6 ÷ 3 = 2 3 + 2 = 5 5u = 25 1u = 25 ÷ 5 = 5 2u = 5 x 2 = 10 cm

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Q15	a) $\frac{(180°-90°-60°)}{2} = 15°$ 45° - 15° = 30° b) 180° - 45° - 60° = 75° 180° - 75° = 105° c) False Not possible to tell False	Q16	ai) 15 aii) 21 b) 81 – 9 = 72 72 ÷ 2 = 36 81 – 36 = 45 Shaded 45, Unshaded 36
Q17	3.14 x 20 x 20 = 1256 $\frac{(1600-1256)}{4} = 86$ $\frac{1}{2}$ x 40 x 40 = 800 1600 – 86 – 86 – 800 = 628cm2		

END

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