**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 × ☐ + 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 $14.6 \times 38.4$?

(1) $15 \times 38$

(2) $15 \times 39$

(3) $14 \times 38$

(4) $14 \times 39$

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%

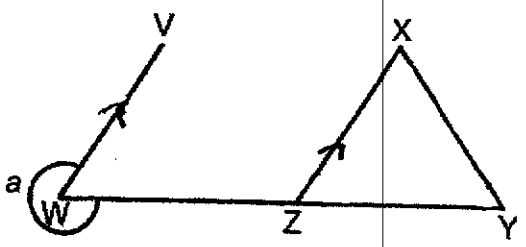
6 XYZ is an equilateral triangle. WZY is a straight line and WV is parallel to ZX. Find $\angle a$.

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

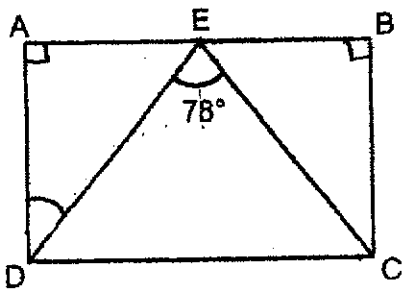
8 ABCD is a rectangle. E is the mid-point of AB and $\angle DEC = 78°$.
Find $\angle ADE$.

(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



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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



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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?

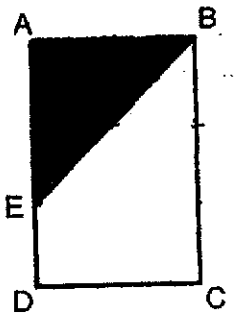
(1) $5.90

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



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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)

Founded in 1887

## 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: _____

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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)

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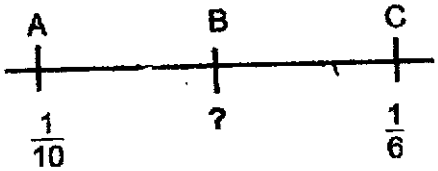
**16** Find the value of $0.78 \times 80$.

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: _____



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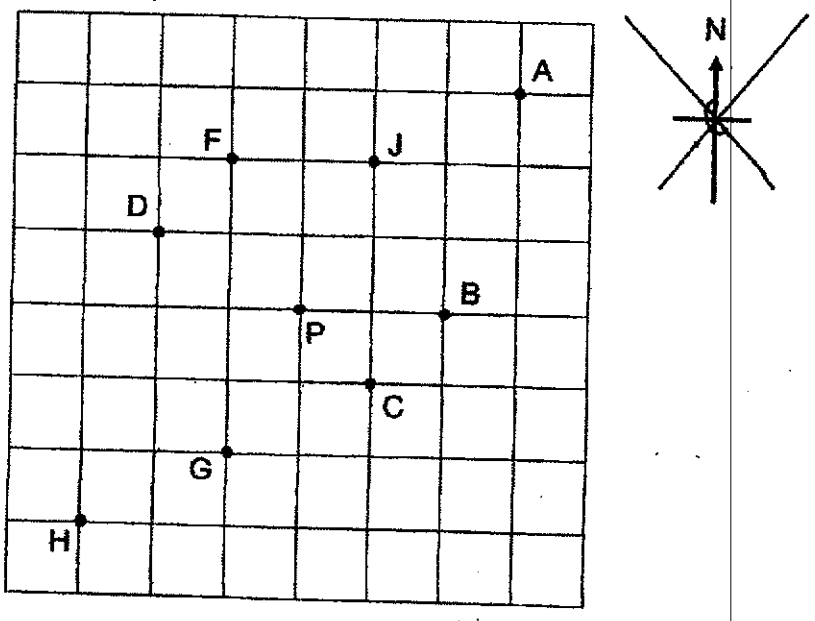
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19 Find the value of $2y - \frac{y}{5}$ when $y = 7$.

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 _____



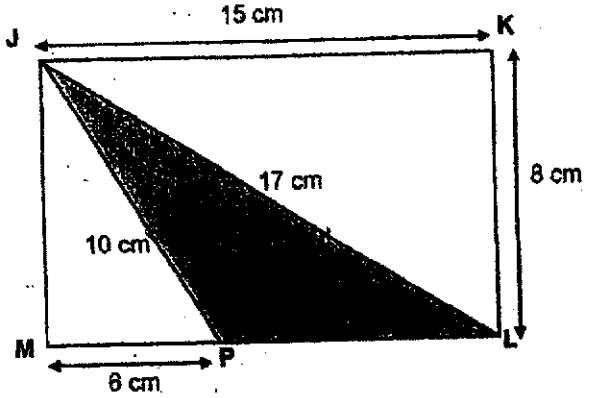
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Questions **21** to **30** carry 2 marks each. Show your working clearly and write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (20 marks)

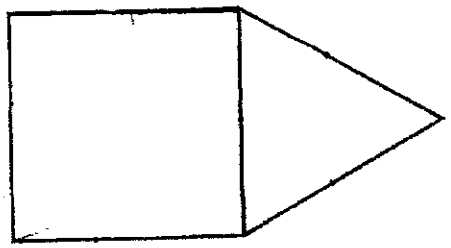
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**21** JKLM is a rectangle. Find the shaded area.




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



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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.

Do not write in this space

| 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?

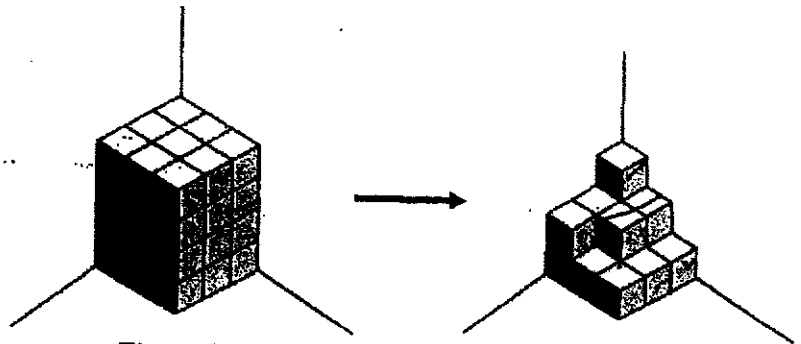


Figure X Figure Y

Ans: _____



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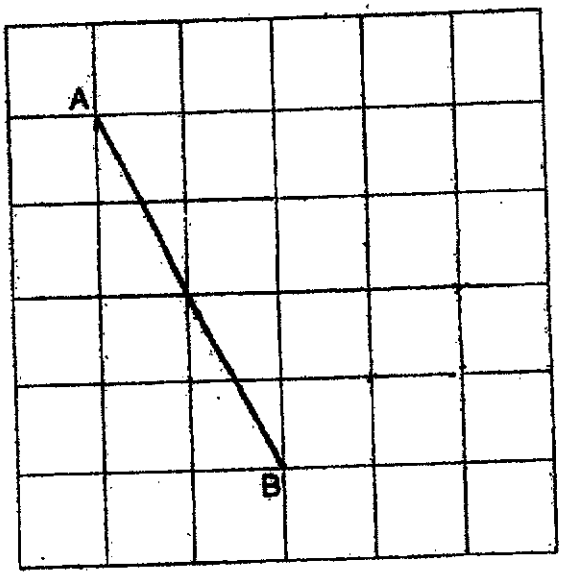
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25 In the grid below, the line AB has been drawn for you.

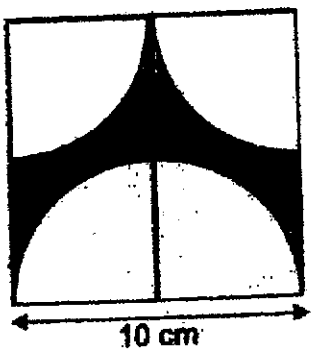
(a) Draw an isosceles triangle, such that AB = AC.
Label point C clearly.

(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 $\pi$.




Ans: _____ $cm^2$



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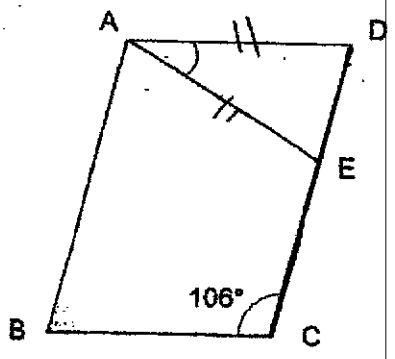
**27** Mrs Lim bought some apples. She gave the fruit seller $50 and received $14 change. How many apples did she buy?

Do not write in this space




Ans: _____

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




Ans: _____°



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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)

Founded in 1887

## 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)

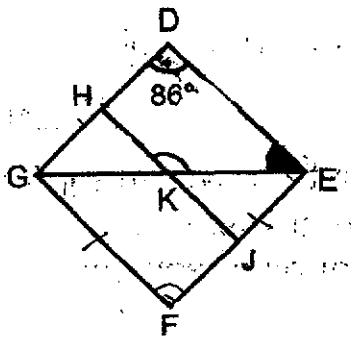
Do not write in this space

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: _____

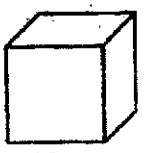
2 DEFG is a rhombus. HJ is parallel to DE and GF. ∠GDE = 86°.

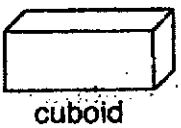
Find ∠HKE.




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.


12 m


cuboid

Ans: _____ $m^3$



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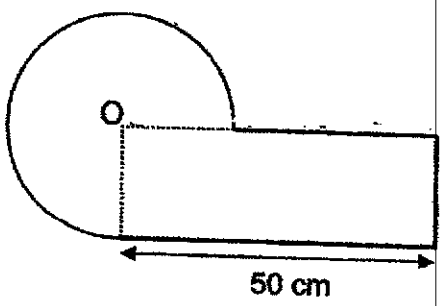
4 The ratio of the number of ten-cent coins to the number of twenty-cent coins in a purse was 3 : 5. When 60 twenty-cent coins were removed, there were an equal number of ten-cent coins and twenty-cent coins. How many ten-cent coins were there in the purse at first?

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



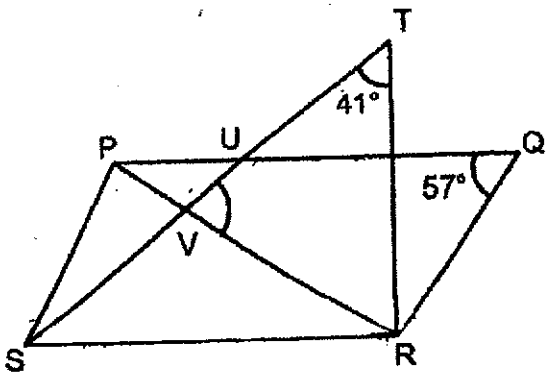
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For questions 6 to 17, show your working clearly and write your answers in the space provided. The number of marks available is shown in brackets [ ] at the end of each question or part-question. (45 marks)

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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]



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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?

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Ans: (a) _____ [2]

(b) _____ [2]

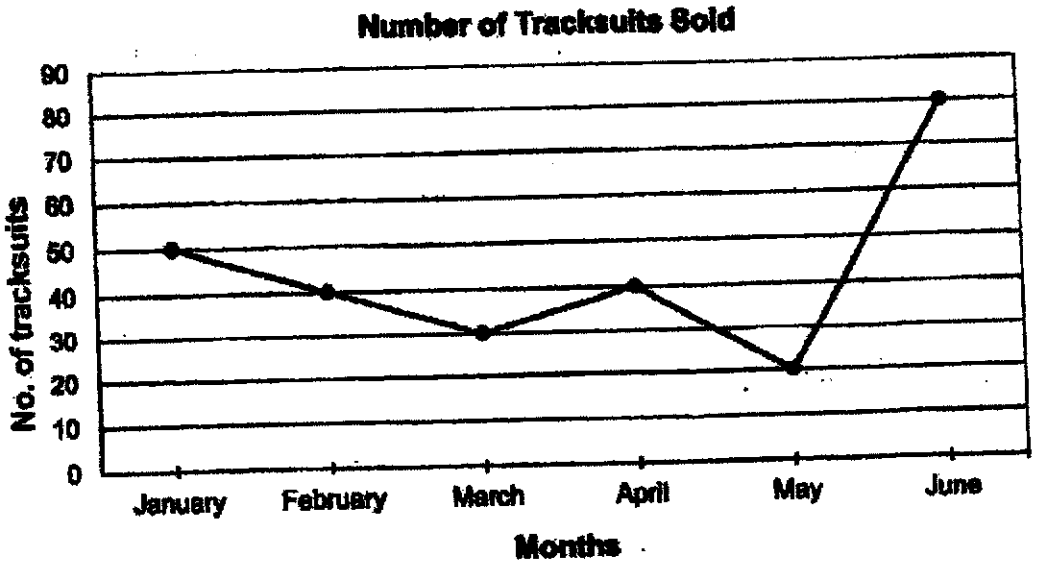


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9 The line graph below shows the number of tracksuits sold in a shop from January to June.

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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]



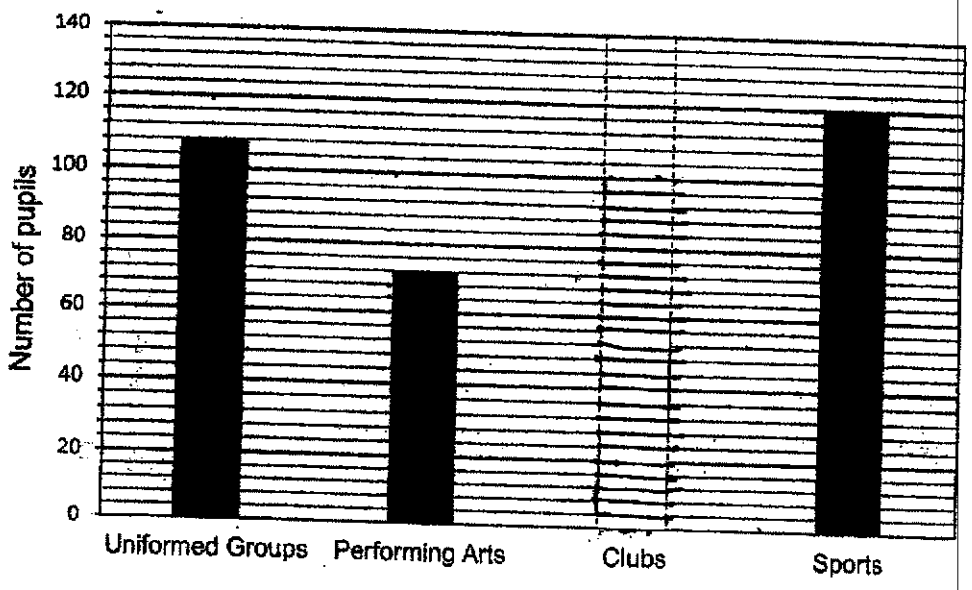
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10 The table and the bar graph below show the distribution of all Primary 5 pupils in the different CCA groups. The percentage of pupils who joined Clubs was covered by a blot of ink.

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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]



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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]



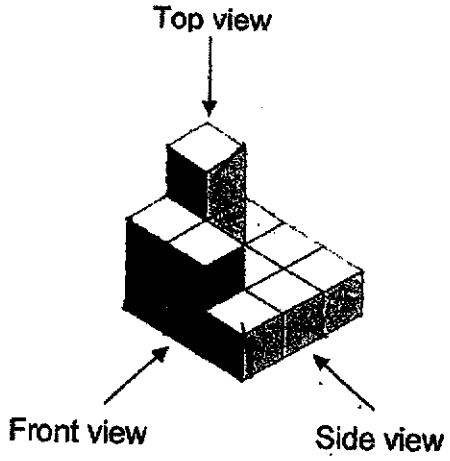
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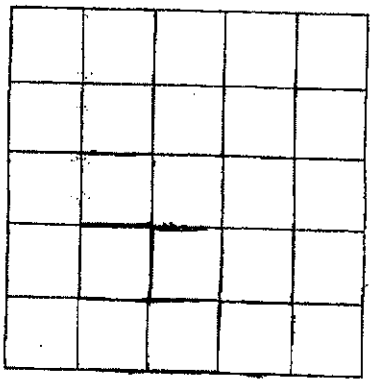
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13 The solid below is made up of 13 1-cm cubes.

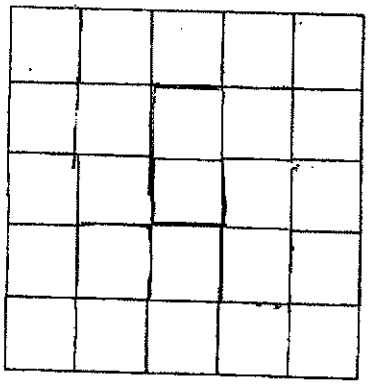
(a) Draw the Front view and Top view of the solid in the grid provided.

(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]



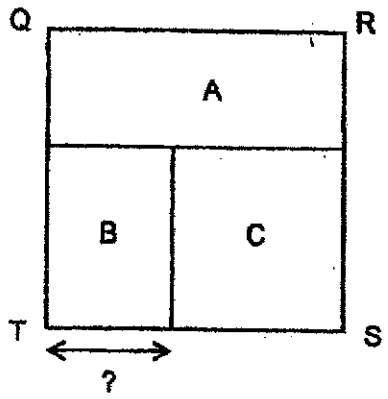
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14 The square QRST is made up of two rectangles and a square.
The ratio of the area of Rectangle A to the area of Rectangle B is 5 : 3.
The ratio of the area of Rectangle B to the area of Square C is 2 : 3.
The area of square QRST is 625 cm$^2$. Find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

Do not write in this space




Ans : _____ [4]



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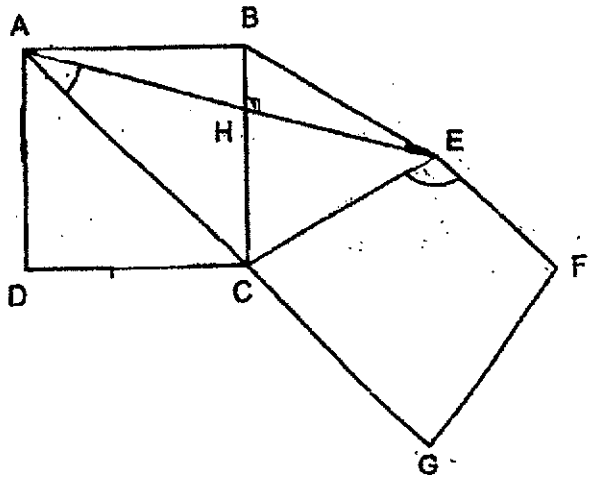
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15 ABCD is a square and BCE is an equilateral triangle.
AEFG is a trapezium and AG is parallel to EF.

(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]



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

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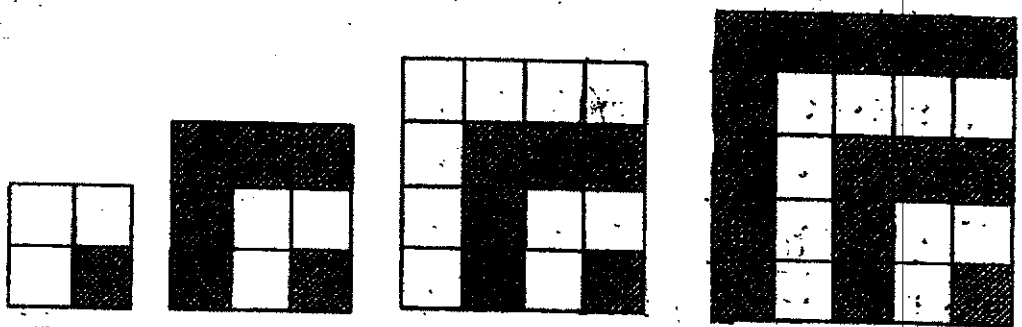


Figure 1 Figure 2 Figure 3 Figure 4

| 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]

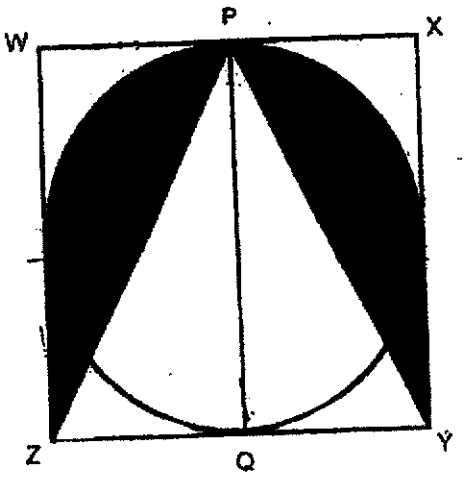


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17 The figure below shows a circle enclosed in a square, WXYZ, of side 40 cm. WP = PX and ZQ = QY. Find the area of the shaded parts. (Take $\pi = 3.14$)




Ans: _____ [5]



End of paper

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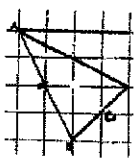
# ANSWER KEY

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 |

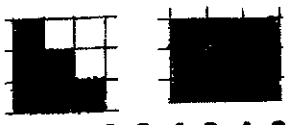
## BOOKLET B (PAPER 1)

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



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## PAPER 2

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



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



END

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