SA2

Name: _____ ( )

Class: Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL (PRIMARY)

Primary 6 Mathematics

2021 Preliminary Examination

Paper 1

Booklet A

24 August 2021

15 questions
20 marks

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.

This booklet consists of 12 printed pages.

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)

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1.   What is the value of the digit 8 in the number 248 671?

      (1)   8 tens

      (2)   8 hundreds

      (3)   8 thousands

      (4)   80 thousands

2.   Which one of the following is larger than $\frac{3}{4}$?

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

      (2) $\frac{5}{8}$

      (3) $\frac{6}{7}$

      (4) $\frac{7}{10}$

2

3. Ava, Ben and Chad have a total amount of $42.

   Which one of the following **cannot** be the ratio of the amount of money Ava has to the amount of money Ben has to the amount of money Chad has?

   (1) 1 : 1 : 5

   (2) 1 : 2 : 3

   (3) 3 : 3 : 4

   (4) 4 : 1 : 4

4. Darius exchanges 100 coins for a $50 note with his aunt. All the coins have the same value. What is the value of each coin?

   (1) 50¢

   (2) 20¢

   (3) 10¢

   (4) 5¢

3

5. Esham took 4 h 20 min to complete his project. He was 55 minutes slower than Foo Xin. How long did Foo Xin take to complete his project?

(1) 3 h 25 min

(2) 3 h 35 min

(3) 4 h 5 min

(4) 5 h 15 min

6. A cuboid has a square base of side 60 cm. The height of the cuboid is 80 cm. What is the volume of the cuboid?

(1) 288 000 cm³

(2) 72 000 cm³

(3) 18 000 cm³

(4) 4800 cm³

4

7. Glory is standing at V facing south now. Then she makes a 3 right-angled turn in a clockwise direction. Where will she be facing in the end?

(1)   U

(2)   W

(3)   X

(4)   Y

5
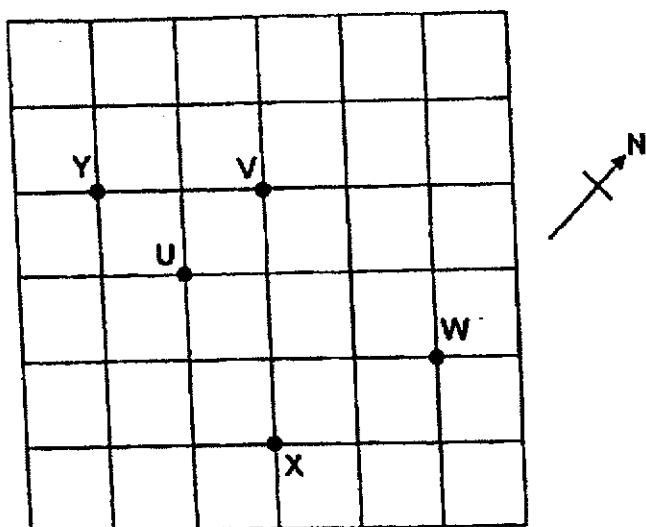
8.　Which two figures, A, B, C and D, have both parallel and perpendicular lines?

| A | B | C | D |
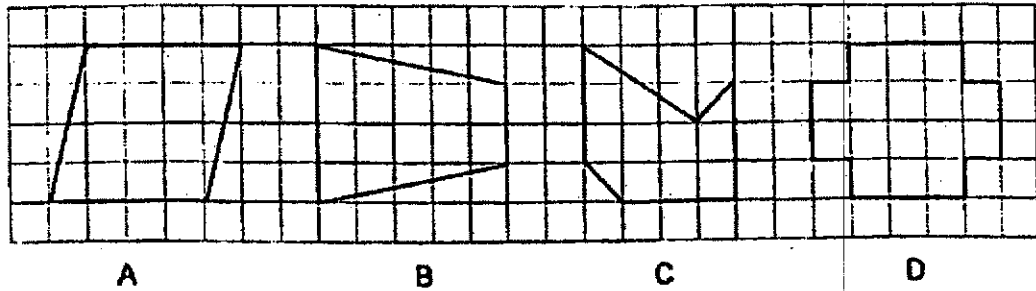
(1)　A and B

(2)　A and D

(3)　B and C

(4)　C and D

6

Use the information below to answer Questions 9 and 10.

The line graph shows the number of waffles sold by Waffle-licious Café from August to December in a year. Each waffle was sold at $3 from August to October. From November to December, each waffle was sold at $4.
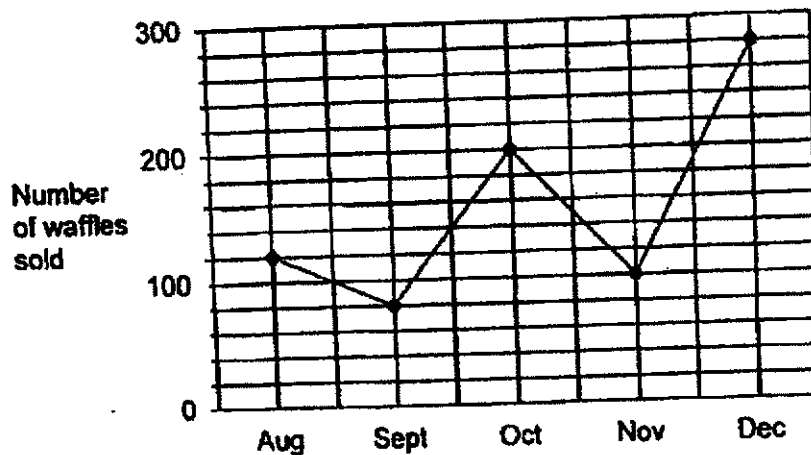
9.   How many more waffles did Waffle-licious Café sell in October than in August?

    (1)   80

    (2)   90

    (3)   120

    (4)   200

10.   What was the total amount of money collected by the café in September and December?

    (1) $1160

    (2) $1360

    (3) $2360

    (4) $2520

7

11. Some men and women took part in a survey to vote for their favourite food. The table shows their choices and the number of men and women who voted for each type of food. Each of them voted for only one type of food.

Favourite Food	Mee Rebus	Nasi Lemak	Prawn Noodles	Chicken Rice
Total number of men and women	49	90	53	98

40% of the total number of men and women who voted for mee rebus, prawn noodles and chicken rice were women. 54 men voted for nasi lemak. How many women took part in the survey altogether?

(1) 174

(2) 156

(3) 134

(4) 116

8

12. Mrs Hong paid $205 for a total of 25 similar bowls and similar plates. Each bowl cost $8. The total cost of the bowls was $35 more than the total cost of the plates. What fraction of the bowls and plates she bought were plates?
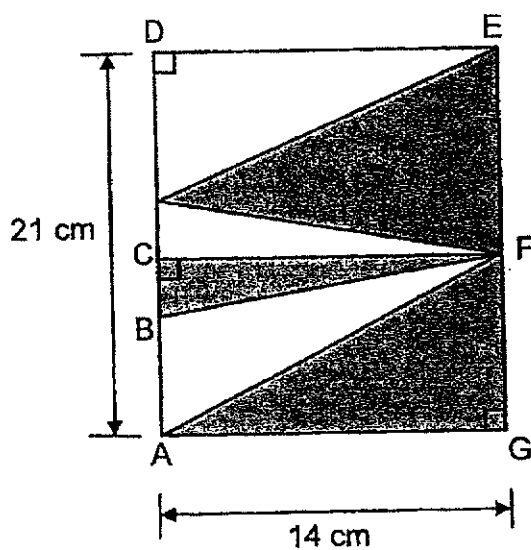
(1) $\frac{2}{5}$

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

(3) $\frac{7}{25}$

(4) $\frac{18}{25}$

BP-651

13. The figure shows a rectangle ADEG. The area of Triangle BCF is 21 cm².
What is the total area of the unshaded parts in ADEG?

(1) 294 cm²

(2) 168 cm²

(3) 147 cm²

(4) 126 cm²

10

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14. ACF is an equilateral triangle and BGED is a rectangle. MHD is a straight line.

Which one of the following statements is true?

(1) $\angle a = 180° - \angle f$

(2) $\angle d + \angle e = \angle j$

(3) $\angle h = 90° - \angle g$

(4) $\angle c = \angle b$

11
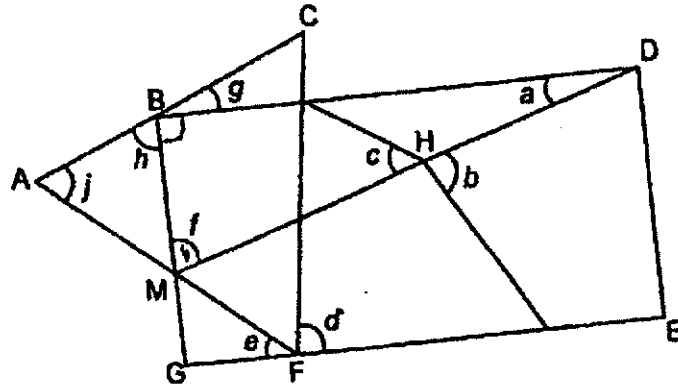
15. At first, a tank contained some water. Without spilling, Ivanka poured $\frac{1}{8}$ of the water from the tank into an empty pail. Then she poured $\frac{4}{5}$ of the remaining amount of water from the tank into another empty tub. The amount of water left in the tank was $2\frac{1}{10}$ ℓ. How much water did the tank contain at first?

(1)   10.5 ℓ

(2)   12.0 ℓ

(3)   14.7 ℓ

(4)   28.0 ℓ

End of Booklet A

Name: _____ ( )

Class: Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL (PRIMARY)
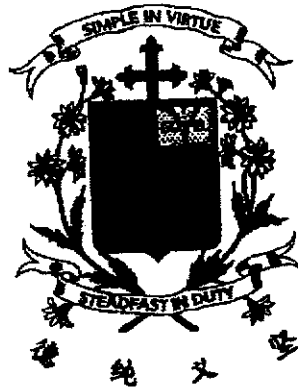
Primary 6 Mathematics

2021 Preliminary Examination

Paper 1

Booklet B

24 August 2021

Booklet A	20
Booklet B	25
Total (Paper 1)	45

15 questions
25 marks

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.

This booklet consists of 11 printed pages.

Questions **16** to **20** carry **1** mark 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.

Do not write in this space

16.   Write 850 thousandths as a fraction. Leave your answer in the simplest form.
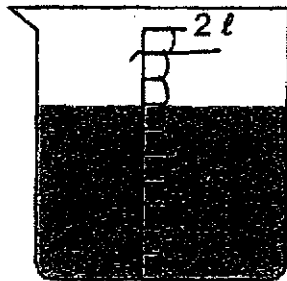
Ans: _____

17.   Subtract 2.07 from 9.

Ans: _____ .

2

18. There were 3000 visitors at a health talk on Wednesday. This was 600 fewer than the number of visitors on Thursday. What was the percentage increase in the number of visitors from Wednesday to Thursday?

Ans: _____ %

19. The beaker shows the amount of water left after Najil poured out 400 ml of water.

How much water was there in the beaker before Najil poured out 400 ml of water?

Ans: _____ ℓ

3

20. The table below shows the number of members in a judo club from 2017 to 2020.

| Year	Number of girls	Number of boys
2017	6	18
2018	11	19
2019	8	17
2020	13	11

Which two years had the same total number of members?

Ans: _____ and _____

4

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)

21. The bar graph shows the mass of food wasted in a factory over five days.
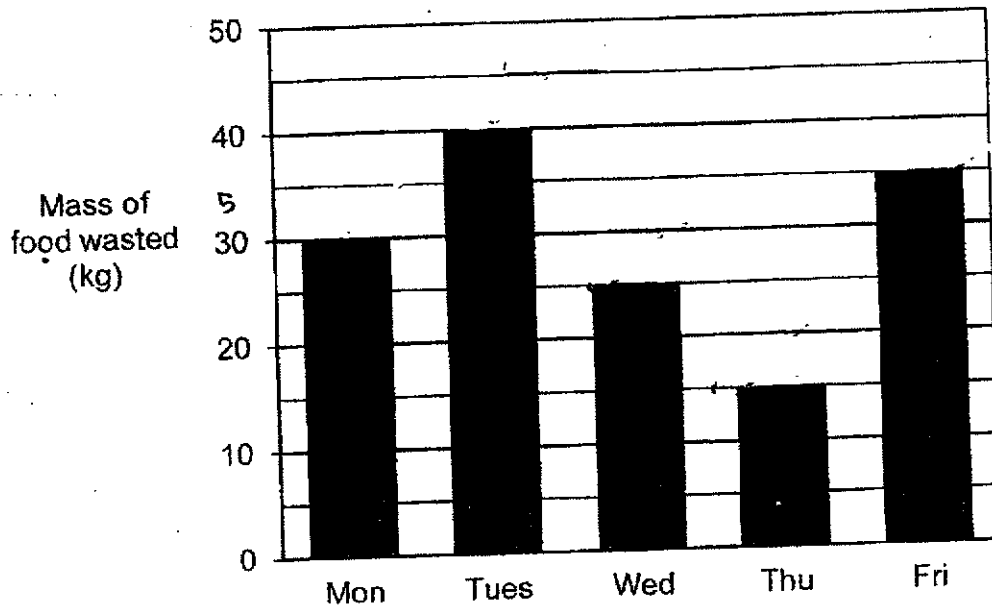
On which day was the mass of food wasted closest to the average mass of food wasted over the five days?
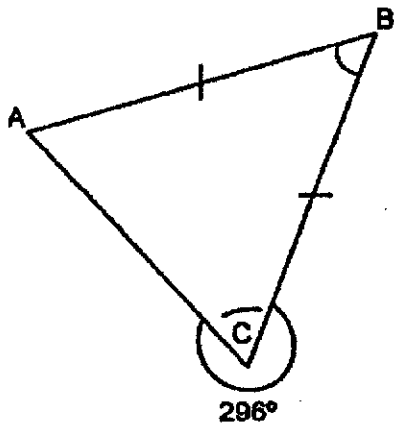
Ans: _____

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22. The total age of Simone, Odelia and Ellie is $(11k + 13)$ years old. Simone is 8 years old and Odelia is $5k$ years old. How old is Ellie?

Ans: _____

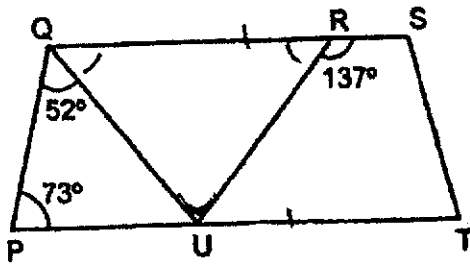23. In the figure, $\angle ACB = 296°$. Find $\angle ABC$.

Ans: _____ °

6

24. The figure shows a trapezium PTSQ. Find ∠QUR.

Ans: _____ °

25. A shirt cost $\frac{1}{2}$ as much as a tie. Yun Ee spent $\frac{1}{3}$ of her money on 2 ties

and 2 shirts. Then she spent $\frac{1}{4}$ of the remaining amount of money on some

more shirts How many shirts did she buy altogether?

Ans: _____

7

26. A windmill makes a total of 80 revolutions in every 4 minutes. At this rate, how long does the windmill take to make a total of 3200 revolutions?

Ans: _____ h

27. The figure shows a piece of wire bent into the shape of a semicircle, a small triangle and a big triangle. The length of WX is 42 cm. The ratio of the length of 1 side of the big triangle to the length of 1 side of the small triangle is 2 : 1 What is the length of the piece of wire? (Take $\pi = \frac{22}{7}$)
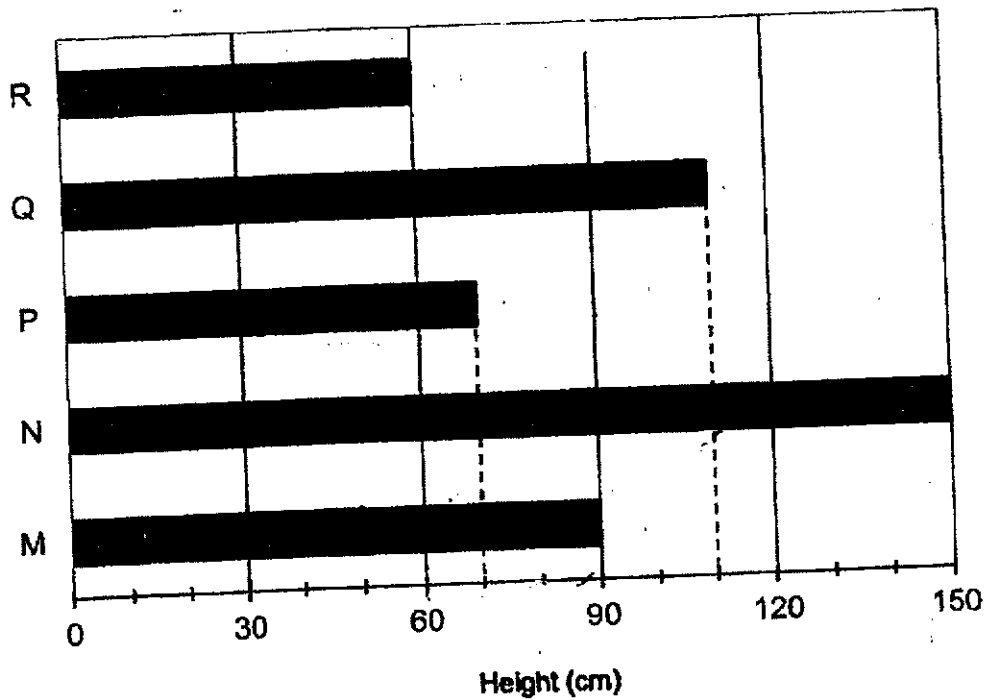

42 cm

Ans: _____ cm

8
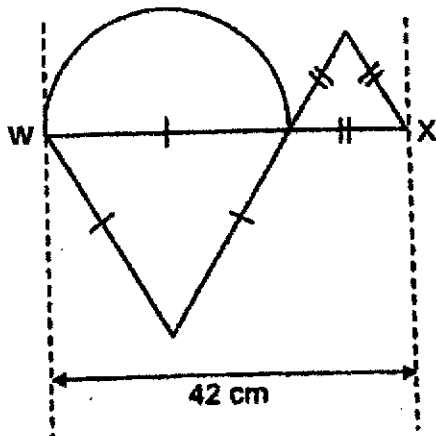
Study the graph and answer question 28(a) and (b).

The bar graph shows each of the height of 5 fans, M, N , P, Q and R.

Height (cm)

28. (a) How many of the fans have height more than 70 cm?

(b) Another fan, S, has a height of 20 cm more than the difference between the height of the tallest fan and that of the shortest fan. Find the height of S.
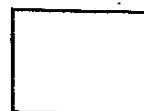
Ans: (a) _____

(b) _____ m/ _____ cm

9

29. Jing had 2 kg of tea leaves at first. She used $\frac{1}{5}$ of the tea leaves to make tea. She gave $\frac{7}{10}$ kg of the tea leaves to Kit See. Jing bought some more tea leaves and then had three times as much tea leaves as she had at first. How much tea leaves did Jing buy?
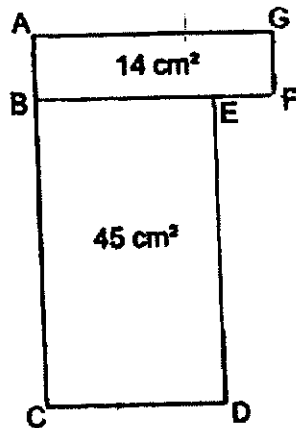
Ans: _____ . kg

10

30. The figure is made up of two rectangles ABFG and BCDE joined together. The length and breadth of each rectangle are whole numbers.

DE is longer than AG and BE is longer than $\frac{1}{2}$ of BF. Find the perimeter of the figure.

Ans: _____ cm

End of Booklet B

11

Name: _____ ( )

Class: Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL (PRIMARY)

Primary 6 Mathematics

2021 Preliminary Examination

Paper 2

24 August 2021

Paper 1		45
Paper 2		55
Total		100

17 questions
55 marks

TOTAL TIME FOR PAPER 2 : 1 HOUR 30 MINUTES

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.

This booklet consists of 18 printed pages.

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.   Among 760 cups of bubble tea, 490 of them had no pearls. The remaining cups of bubble tea with pearls were sold for a total amount of $1836. How much did each cup of bubble tea with pearls cost?
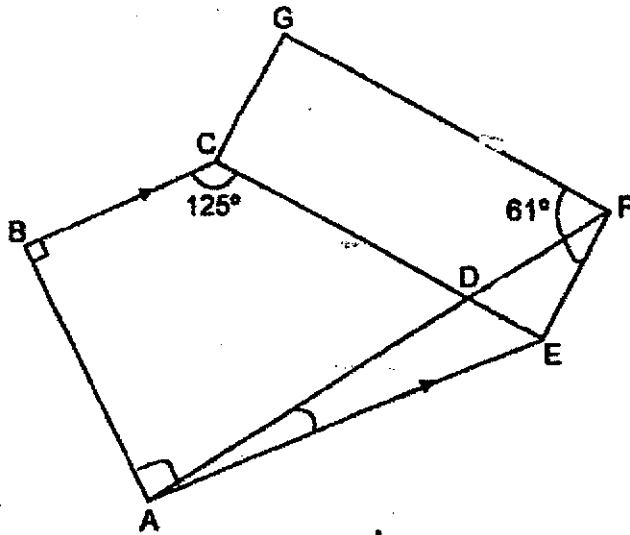
Ans : $ _____

2.   Both Parcel X and Parcel Y have the same height. They are placed on a table as shown. The length of Parcel Y is 24 cm and is 4 times its height. What is the height of the table?

Ans : _____ m

2
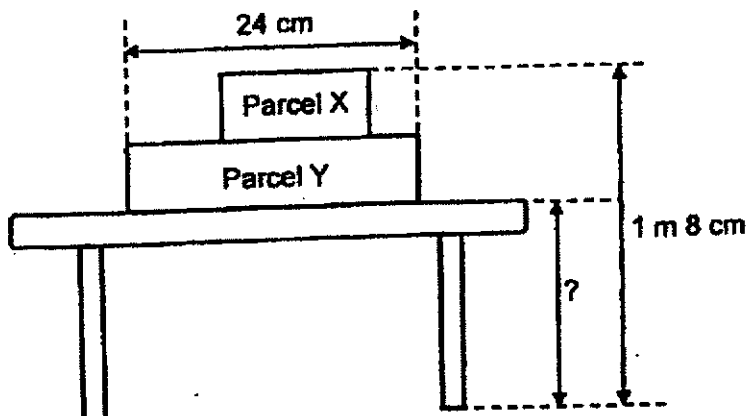
3. In the figure, BC // AE and GFEC is a rectangle. ADF is a straight line. Find ∠FAE.

Ans : _____ °
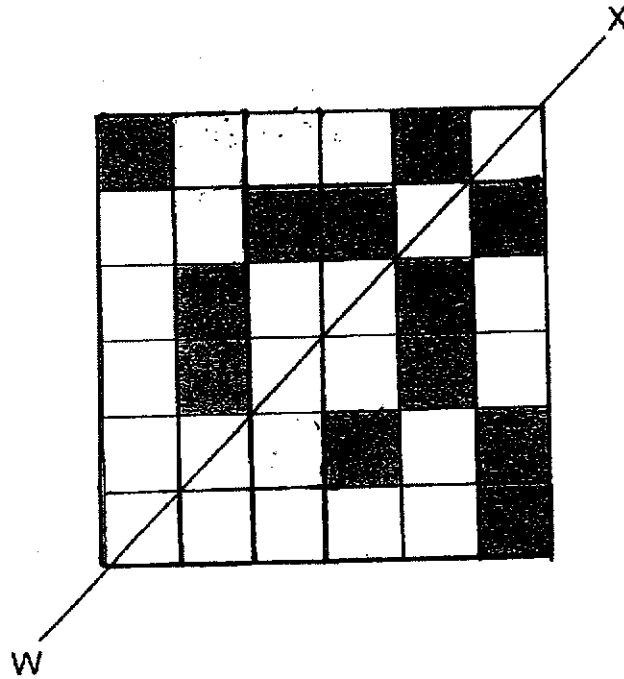
3

4. Study the figure below. Shade the least possible number of squares so that WX is the line of symmetry.

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5. At first, the average score that a group of men obtained in a gaming contest was 70. When 1 more man with a score of 50 joined in, the average score of all the men became 66 in the end. How many men were there altogether in the end?

Ans : _____

5

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. Lindy drew lines to form squares and triangles that follow a pattern.
    The first three figures are shown below.
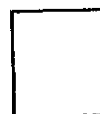

Figure 1   Figure 2   Figure 3

(a) The table below shows the number of lines drawn for each figure.
     Complete the table for Figure 4.

Figure Number	Number of squares	Number of triangles	Number of lines drawn
Figure 1	2	1	9
Figure 2	4	2	17
Figure 3	6	3	25
Figure 4			

[1]

(b) What is the total number of squares and triangles in a figure that has 105 lines drawn?
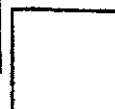
Ans : _____ . [2]

6

7. Reese made some candles and pins for sale. $\frac{3}{8}$ of the items made were candles. She sold $\frac{2}{9}$ of the candles and 84 pins. In the end, she had $\frac{5}{12}$ of the items left. How many pins did Reese make at first?

Ans : _____ .[3]

7

8. There are altogether 14 magnets in Set A and Set B. The total mass of both sets of magnets is 950 g. The mass of each of the 6 magnets in Set A is 8y g. All the magnets in Set B have the same mass. What is the mass of each magnet in Set B?

Do not write in this space

Ans : _____ [3]

8

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9. The table shows the rates for printing cards at Happy Print Shop.

Number of cards	Price
First 300 cards	$180
Every additional card	45¢ each

Murray paid $253.35 to print some cards. How many cards did he print?

Ans : _____ [3]

9

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10. The figure shows a cuboid and a cube joined together. The total length of all the edges of the cube is 720 cm. The breadth of the cuboid is the same as the breadth of the cube. What is the difference in the volume of the cuboid and the cube?

10 cm

122 cm

Ans : _____ [3]

10
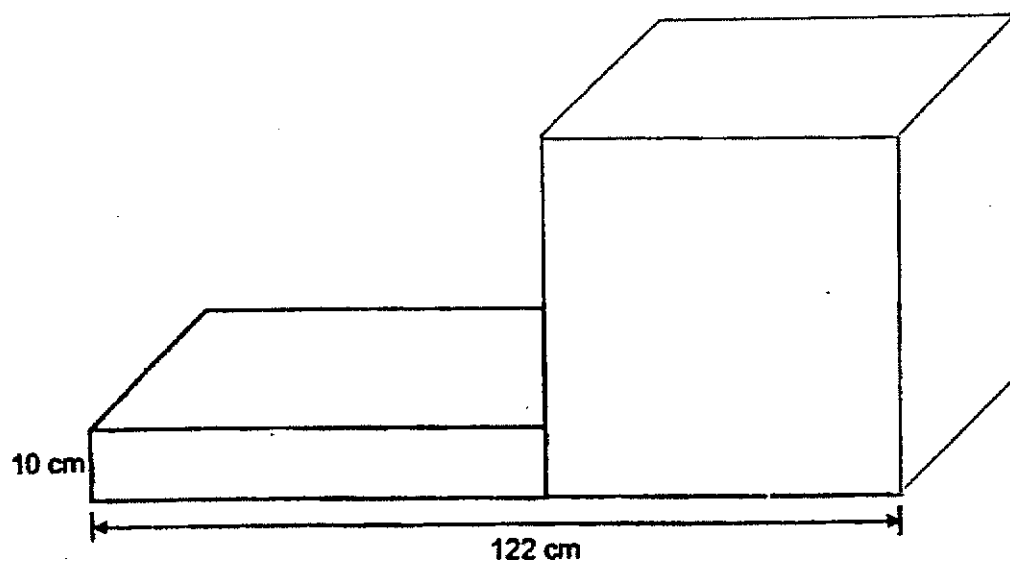
11. The figure shows one side of a trapezium, AB, drawn on an isometric dot.

By joining dots on the grid with straight lines,

(a) complete the trapezium by drawing the other three sides such that AB // DC and DC is longer than AB. Label the trapezium ABCD.　　[1]

(b) draw a rectangle WXYZ such that Z is the midpoint of AB and W is the midpoint of AZ. WX is longer than XY. Label the rectangle WXYZ and measure ZX.

A　　　　　B

Ans : (b) _____ [2]

11
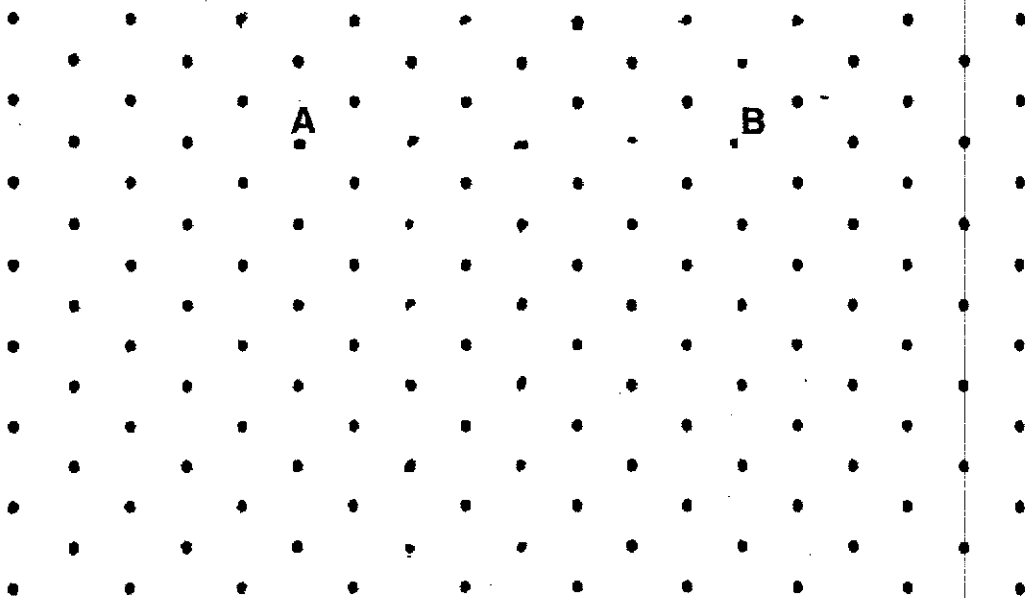
12. Vasami jogs every day from Wednesday to Saturday. He does not jog on the other days of the week. Every day from Wednesday to Saturday, he jogs 0.1 km more than the previous day. He jogs an average distance of 1.45 km on Friday and Saturday. What is the average distance that he jogs in a week? Give your answer in metres.

Ans : _____ [4]

12

13. On Monday, Xander and Tristan each received some money from their mother. Xander received $80 less than Tristan. They did not spend any money on Monday. On Tuesday, Tristan gave Xander 40% of his money. On Wednesday, Tristan spent 25% of his remaining amount of money on a wallet which cost $39. What was the total amount of money Xander and Tristan received on Monday?

Ans : _____ [4]

13

14. Some girls and boys took part in a race. At first, the number of girls was $\frac{5}{7}$ of the number of boys. After 10 girls and 32 boys withdrew from the race, the ratio of the number of girls to the number of boys was 5 : 4.

(a) How many children were there altogether in the end?

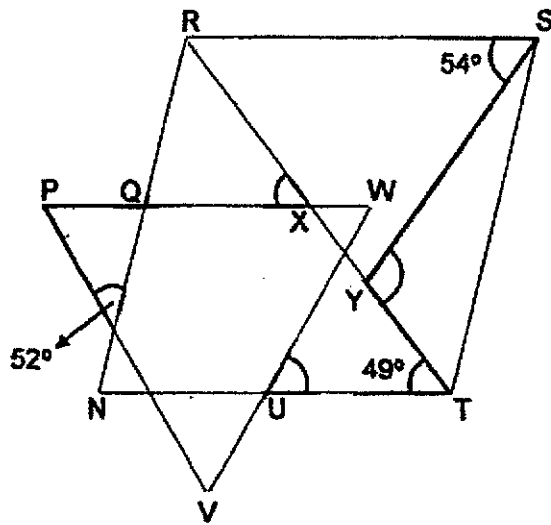(b) How many children were there altogether at first?

Ans : (a) _____ . [3]

(b) _____ . [1]

14

15. The figure shows a triangle WPV with all its sides equal and a rhombus NRST. TR is a straight line.

(a) Find ∠RXP.

(b) Find ∠SYT.

(b) _____ [2]

15

(c) 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. [1]

| Statement	True	False	Not possible to tell
∠WUT is an obtuse angle.			
UNQW is a trapezium.			

16

16. The figure is made up of a circle, 4 identical semicircles and a square. The area of the square is 784 cm². O is the centre of the circle.

(a) Find the radius of the circle.

(b) Use the calculator value of π to find the total area of the shaded parts.

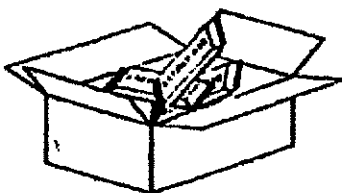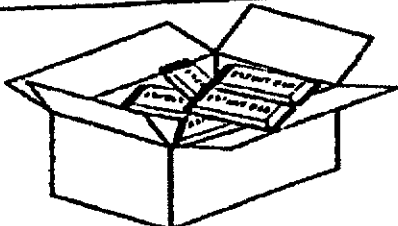Leave your answer correct to 1 decimal place.

Ans : (a) _____ [1]

(b) _____ [4]

17
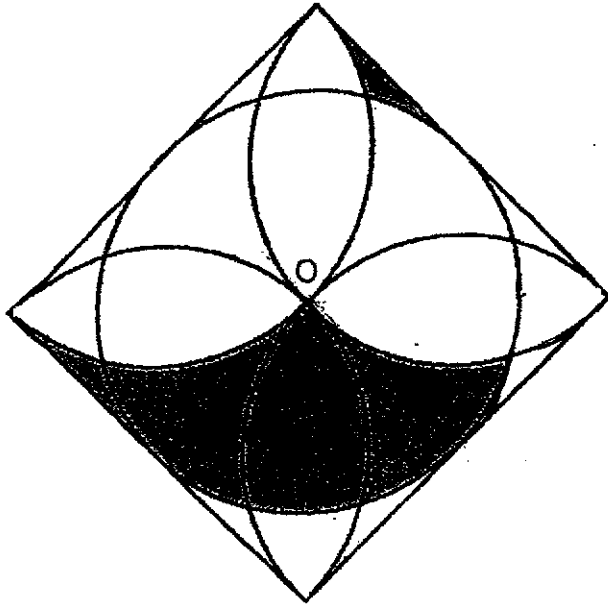
17. Mrs Rafael bought energy bars for 79 pupils at two different sizes and prices shown below, She gave each pupil 2 energy bars.

| 1 box of 15 for $18 | 1 box of 20 for $29 |

(a) Mrs Rafael spent the least amount of money to buy the energy bars and had the least number of energy bars left over. How many boxes of each type of energy bars did she buy?

(b) How much did Mrs Rafael pay for all the energy bars?

Ans : (a) Boxes of 15 : _____ [3]

Boxes of 20 : _____

(b) _____ [2]

End of Paper

18

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ANSWER KEY

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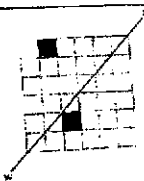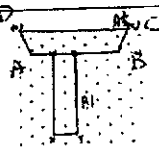TERM   :   PRELIMINARY

BOOKLET A (PAPER 1)

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

BOOKLET B (PAPER 1)

Q16	$\frac{17}{20}$	Q17	6.93
Q18	$\frac{600}{3000} = \frac{6}{30} = \frac{1}{5} = \frac{2}{10} = 0.20$ ANS:20%	Q19	1.8L
Q20	2017 and 2020	Q21	$30 + 40 + 25 + 15 + 35$ $= 70 + 40 + 35$ $= 110 + 35 = 145$ $145 \div 5 = 29$ ANS : Monday
Q22	$11k + 13 - 5k - 8 = (6k + 5)$ years old	Q23	$360° - 296° = 64°$ $180° - 64° - 64° = 52°$
Q24	$180° - 73° - 52° = 55°$ $180° - 137° = 43°$ $180° - 43° - 55° = 82°$	Q25	2 ties = 4sh to + rem = 6+6=12sh $4+2=6$ $\frac{1}{2} \times 12 = 3$ $3 + 2 = 5$ shirts
Q26	4min → 80 160min → 3200 160min → 2h40min ANS : $2\frac{2}{3}$h	Q27	$\frac{1}{2} \times \frac{22}{7} \times 28 = 44$ $(3 \times 2) + (1 \times 3) = 9$ $(9 \times 14) + 44 = 170$cm

Q28	a) 3
	 b) $150 - 60 = 90$
	    $90 + 20 = 110.$
	    ANS: 1m10cm
		Q29	$\frac{4}{5} \times 2 = \frac{8}{5}$ kg (actual left)
			 $\frac{8}{5} - \frac{7}{10} = \frac{9}{10}$
			 $2 \times 3 = 6$
			 $6 - \frac{9}{10} = 5\frac{1}{10}$kg

Q30	$7 + 2 + 9 + 5 + 9 + 2 + 2 = 36$cm		

PAPER 2

Q1	$760 - 490 = 270$ $1836 \div 270 = \$6.80$	Q2	$24 \div 4 = 6$ 1m8cm = 108cm $108 - 6 - 6 = 96$ ANS: 0.96m

i

Q3	$<DFE = 90° - 61° = 29°$ $<CEA = 180° - 125° = 55°$ $<FDE = 90° - 29° = 61°$ $<CDF = 180° - 61° = 119°$ $<FAE = 180° - 119° - 55° = 6°$	**Q4**	
Q5	$70 - 66 = 4$ $66 - 50 = 16$ $16 \div 4 = 4$ $4 + 1 = 5$	**Q6**	a) Figure 4 : 8 , 4 , 33 b) $26 + 13 = 39$
Q7	$1- \frac{5}{12} = \frac{7}{12}$ $\frac{7}{12} - \frac{1}{12} = \frac{6}{12}$ $\frac{6}{12} \to 84$ $\frac{12}{12} \to 84 \times 2 = 168$ $\frac{5}{8} \times 168 = 105$	**Q8**	$14 - 6 = 8$ $8y \times 6 = 48y$ $\left(\frac{950-48y}{8}\right)$ g
Q9	$235.35 - 180 = 73.35$ $73.35 \div 0.45 = 163$ $163 + 300 = 463$ cards	**Q10**	$720 \div 12 = 60$ Cube $= 60 \times 60 \times 60 = 216000$ $122 - 60 = 62$ Cuboid $\to 62 \times 60 \times 10 = 37200$ $216000 - 37200 = 178800 cm3$
Q11	 b) 6.5 cm	**Q12**	$1.45 \times 2 = 2.9 km = 2900m$ $2900 - (5 \times 100) = 2400$ $2400 \div 2 = 1200$ $(1200 \times 4) + (100 \times 6) = 5400$ $5400 \div 7 = 771\frac{3}{7}m$
Q13	$39 \times 4 = 150$ $60\% \to 156$, $10\% \to 156 \div 6 = 26$ $100\% \to 26 \times 10 = 260$ $260 - 80 = 180$ $180 + 260 = \$440$	**Q14**	a) 54 b) 96 $15u = 120$ $1u = 120 \div 15 = 8$ $5 + 7 = 12$ $12u = 12 + 8 = 96$ $96 - 10 - 32 = 54$
Q15	a) $<PQN=180°-60°-52°=68°$ $<RXP=180°-44°-68°=63°$ b) $<RYS=180°-49°-54°=77°$ $<SYT=180°-77°=103°$ c) FALSE , FALSE	**Q16**	a) $\sqrt{784} = 28$ $28 \div 2 = 14$ b) $\frac{1}{4} \times \pi \times 14 \times 14 = 44\pi$ $14 \times 14 = 196 cm$ $(196 - 49 \pi) + 196$ $= 392 - 49 \pi \approx 238.1 cm2$
Q17	a) $160 - 20 - 20 = 120$ $120 \div 15 = 8$ (Box of 15) ANS : Box of 20 : 2 b) $(8 \times \$18) + (2 \times \$29) = \$202$		