PSLE
Index No.

MARIS STELLA HIGH SCHOOL (PRIMARY)

PRELIMINARY EXAMINATIONS

PRIMARY 6 MATHEMATICS

20 AUGUST 2014

PAPER 1

(BOOKLET A)

15 questions

20 marks

Total time for Booklets A and B: 50 min

NAME : _____ ( )

CLASS : PRIMARY 6 _____

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 five million, one thousand and twenty-eight in numerals?

   (1) 501 028
   (2) 510 028
   (3) 5 001 028
   (4) 5 100 028

2. The number of books in a warehouse when rounded off to the nearest hundred was 8000. What was the possible number of books in the warehouse?

   1) 7560
   2) 7950
   3) 8150
   4) 8460

3. $7 \div 25 =$ _____ thousandths.

   (1) 0.28
   (2) 0.208
   (3) 208
   (4) 280

4. Which one of the following is nearest to 1?

   (1) $\frac{2}{3}$
   (2) $\frac{4}{5}$
   (3) $1\frac{1}{4}$
   (4) $\frac{7}{6}$

5. Which one of the following is equal to $\frac{3}{8} \div 12$?

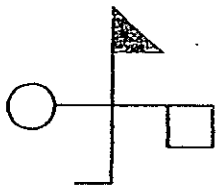
(1) $\frac{3}{8} \times \frac{1}{12}$

(2) $\frac{3}{8} \times \frac{12}{1}$

(3) $\frac{8}{3} \times \frac{1}{12}$

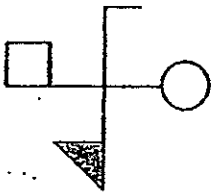
(4) $\frac{8}{3} \times \frac{12}{1}$

6. Min Xie drew the diagram below. He then gave it a three-quarter turn in a clockwise direction.

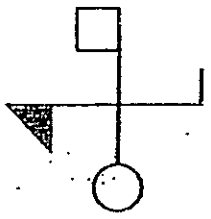


Which one of these is the correct figure after the turn?

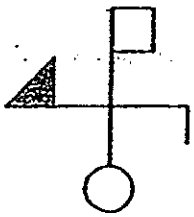
1)



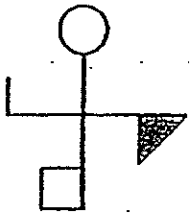
2)



3)



4)



7. Darren had \$20. After buying 5 identical caps, he has \$$y$ left. Find the cost of one such cap in terms of y.

(1) $\$(4 - y)$

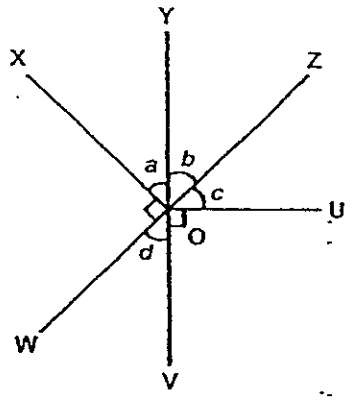
(2) $\$(\frac{15}{y})$

(3) $\$(\frac{19y}{5})$

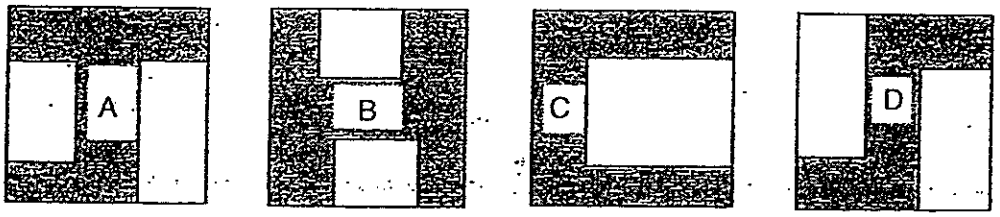
(4) $\$(\frac{20 - y}{5})$

8. In the figure below, WZ and YV are straight lines. Which of the following two angles will not add up to 90°?

1) $\angle a$ and $\angle b$
2) $\angle a$ and $\angle c$
3) $\angle b$ and $\angle c$
4) $\angle c$ and $\angle d$



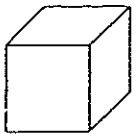
9. Various shapes were shaded on 4 identical sheets of square paper shown below.



Which one of these shapes has the same perimeter as the original sheet of square paper?

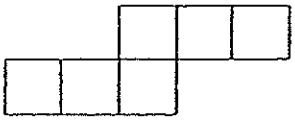
(1) A
(2) B
(3) C
(4) D

10. The figure below shows a cube.

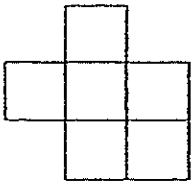


Which one of the following is a net of the cube?

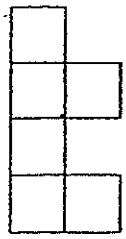
(1)



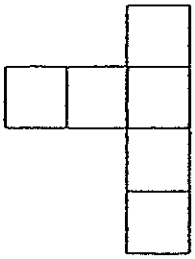
(2)



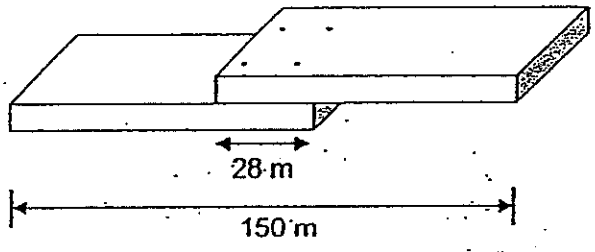
(3)



(4)



11. Two identical rectangular pieces of plank were nailed together as shown below. The overlapped portion is 28 m long.



What is the length of each piece of plank before they were nailed together?

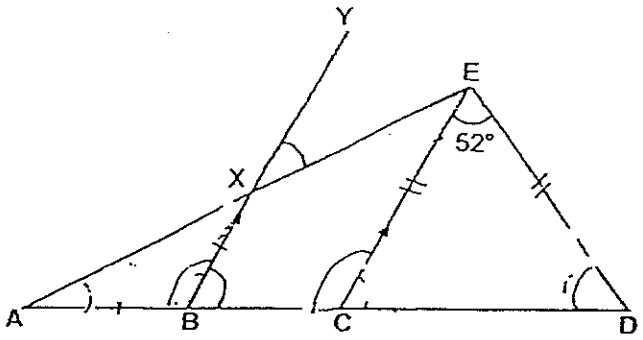
(1) 61 m

(2) 89 m

(3) 103 m

(4) 122 m

12. In the figure below, AE and AD are straight lines. BY is parallel to CE, CE = DE and AB = BX. Find the value of ∠YXE.



(1) 32°

(2) 38°

(3) 58°

(4) 64°

13. 15% of the cupcakes in a bakery is as many as 25% of the buns it has. There are 40 more cupcakes than buns. How many cupcakes are there?

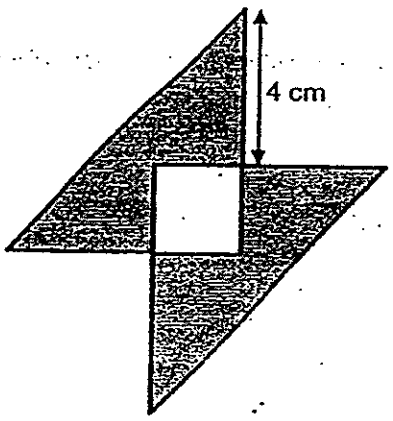
(1) 60

(2) 100

(3) 160

(4) 400

14. The figure below is not drawn to scale. Two identical right-angled isosceles triangles overlapped to form a square with a perimeter of 8 cm. Find the area of the shaded parts.



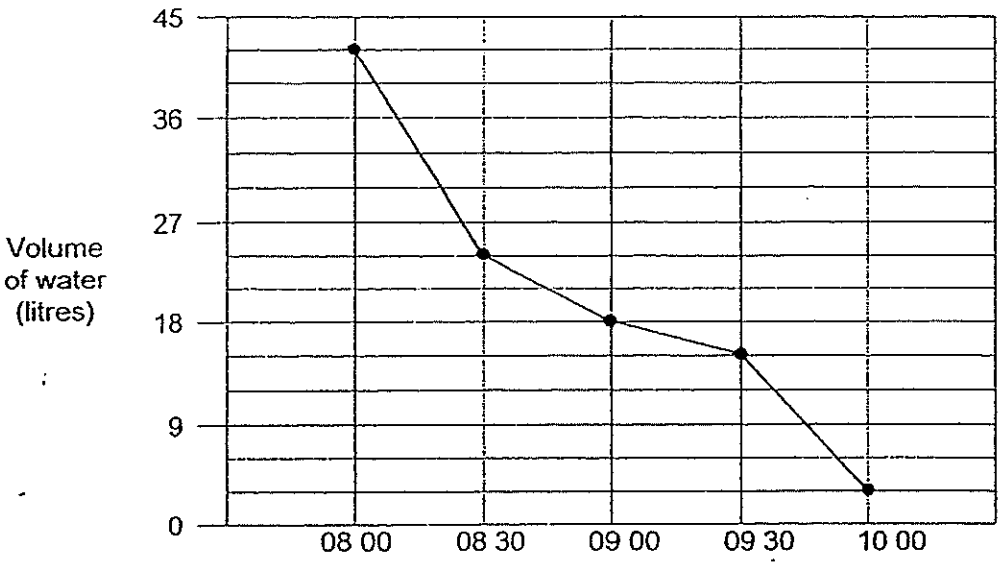
(1) 16 cm^2

(2) 28 cm^2

(3) 32 cm^2

(4) 36 cm^2

15. There were 45 litres of water in a tank at 08 00. Water flowed out of the tank from 08 00 to 10 00 as shown in the line graph below.



On the average, what is the rate of water that flowed out of the tank?

(1) 7.8 ℓ / h

(2) 9.75 ℓ / h

(3) 19.5 ℓ / h

(4) 22.5 ℓ / h

End of Booklet A

Go on to Booklet B

PSLE Index No. | | | | | | – | |

MARIS STELLA HIGH SCHOOL (PRIMARY)
PRELIMINARY EXAMINATIONS
PRIMARY 6 MATHEMATICS
20 AUGUST 2014
PAPER 1
(BOOKLET B)

15 questions
20 marks

Total time for Booklets A and B: 50 min

NAME : _____ ( )

CLASS : PRIMARY 6 _ _____

INSTRUCTIONS TO CANDIDATES

1. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. FOLLOW ALL INSTRUCTIONS CAREFULLY.
3. ANSWER ALL QUESTIONS.
4. WRITE YOUR ANSWERS IN THIS BOOKLET.
5. YOU ARE NOT ALLOWED TO USE A CALCULATOR.

Questions **16** to **25** carry 1 mark each. 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.

16. Express 12 kg 23 g in kg.

Answer : _____ kg

17. Find the value of $(8 + 4 \times 2) \div 2 \times 4$.

Answer : _____

18. Express 8.05 as a mixed number in its simplest form.

Answer : _____

19. The opening hours of a seafood restaurant is as follows:

Opening hours
Lunch: 11.00 a.m. to 2.30 p.m.
Dinner: 5.30 p.m.to 1.30 a.m.

How long does the restaurant open each day?

Answer : _____ h _____ min

SCORE

(Go on to the next page)

20. Find the missing number in the box.

$0.204 = \square \div 100$

Do not write in this space.

Answer : _____

21. What is the largest common factor of 12 and 18?

Answer : _____

22. In the diagram below, the word 'MARIST' is formed with 6 letters. How many of these letters have exactly one line of symmetry each?

M A R I S T

Answer : _____

23. There are blue, red and green buttons in a tray. The number of blue buttons is twice that of the red buttons. The ratio of the number of blue buttons to the number of green buttons is 4 : 5. Find the ratio of the number of red buttons to the number of green buttons.

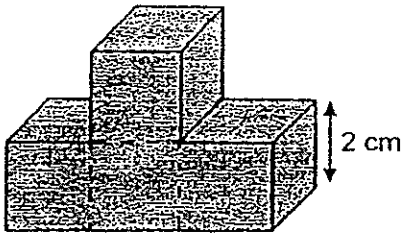
Answer : _____

SCORE

(Go on to the next page)

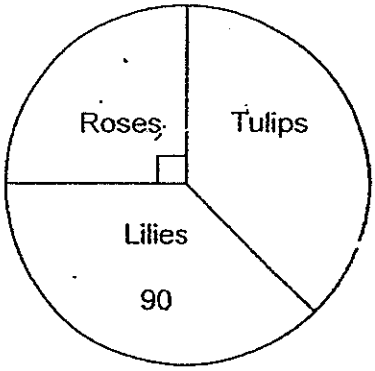
24. The block of wood shown below was dipped into a container of paint. The block was then cut into 4 identical cubes along the dotted lines and taken apart. Find the total unpainted area of the 4 cubes.

Do not write in this space.



Answer : _____ cm^2

25. The pie chart shows the different types of flowers a florist sold last week. She sold an equal number of tulips and lilies.



How many roses did the florist sell last week?

Answer : _____

SCORE

(Go on to the next page)

Questions 26 to 30 carry 2 marks each. Show your working clearly in the space provided for each question 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.

26. A repeated pattern is formed using the 4 letters A, B, C and D.
The first 16 letters are shown below.

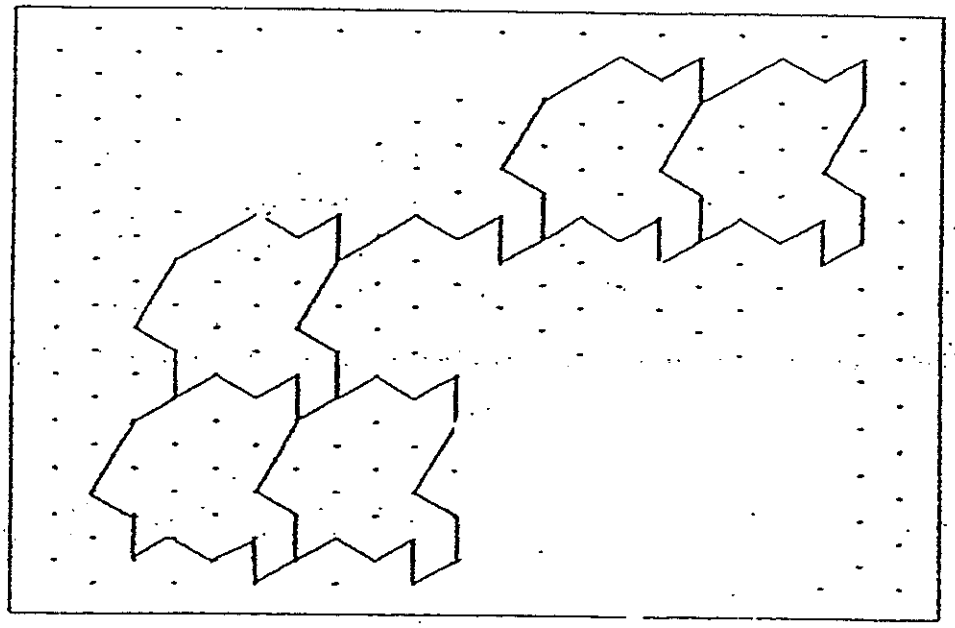
A B C D D C B A A B C D D C B A

1st 2nd 3rd 16th

How many 'D' are there in the first 125 letters?

Answer _____

27. The pattern in the box shows part of a tessellation. Extend the tessellation by drawing two more unit shapes in the space provided within the box.



SCORE

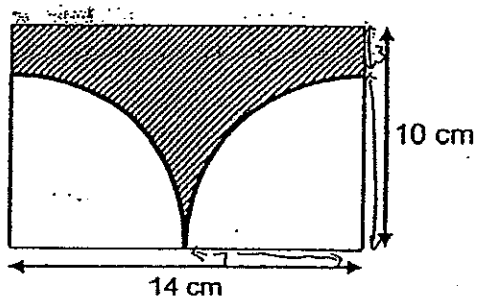
(Go on to the next page)

28. Matthew and Damon had the same amount of money at first. Matthew spent \$120 and Damon spent $\frac{2}{3}$ of his money. In the end, the ratio of the amount of money Matthew has to the amount of money Damon has is 2 : 1. How much money has Matthew in the end?

Do not write in this space.

Answer : \$ _____

29. A rectangle measures 14 cm by 10 cm. Two identical quadrants are cut out from it as shown below. Find the perimeter of the remaining rectangle (shaded part). (Take $\pi = \frac{22}{7}$)

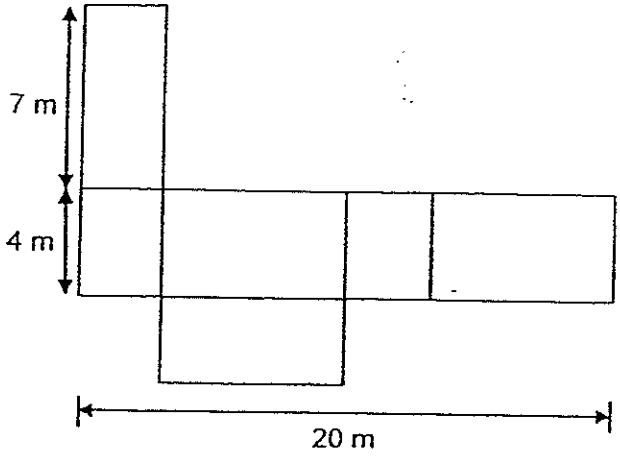


Answer : _____ cm

SCORE

(Go on to the next page)

30. The figure below, not drawn to scale, is the net of a cuboid. Find the volume of the cuboid.



Do not write in this space.

Answer : _____ m^3

End of Booklet B

SCORE

PSLE Index No. | | | | | | | |

MARIS STELLA HIGH SCHOOL (PRIMARY)

PRELIMINARY EXAMINATIONS

PRIMARY 6 MATHEMATICS

20 AUGUST 2014

PAPER 2

18 questions
60 marks
Time: 1 h 40 min

NAME : _____ ( )

CLASS : PRIMARY 6 _____

INSTRUCTIONS TO CANDIDATES

1. DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
2. FOLLOW ALL INSTRUCTIONS CAREFULLY.
3. ANSWER ALL QUESTIONS.
4. SHOW YOUR WORKINGS CLEARLY AS MARKS ARE AWARDED FOR CORRECT WORKING.
5. WRITE YOUR ANSWERS IN THIS BOOKLET.
6. YOU ARE **ALLOWED** TO USE A CALCULATOR.

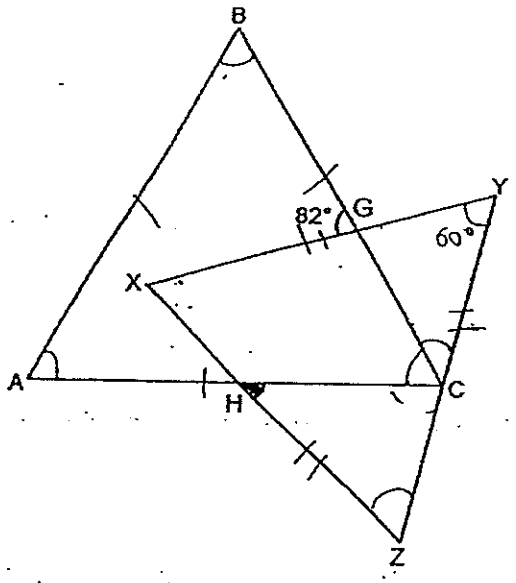
Questions 1 to 5 carry 2 marks each. Show your working clearly in the space provided for each question and write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (10 marks)

Do not write in this space.

1. Jasper mixed some blue and yellow paint in the ratio 2 : 3 to make some green paint. He used 1.8 ℓ of yellow paint and the correct amount of blue paint. How many litres of green paint did he get?

Answer : _____ ℓ

2. In the diagram below, ABC and XYZ are equilateral triangles, and ∠BGX = 82°. Find ∠CHZ.



Answer : _____ °

SCORE

(Go on to the next page)

3. The table below shows the marks Jason scored for his first three Math tests. He wants to improve his average score by 2 marks. How many marks must he score for the next Math test?

Do not write in this space.

Test	1	2	3	4
Score	78	84	72	?

Answer : _____

4. Benny had $80 more than Jared. After Jared gave $35 to Benny, Benny had 3 times as much money as Jared. How much money did Jared have in the end?

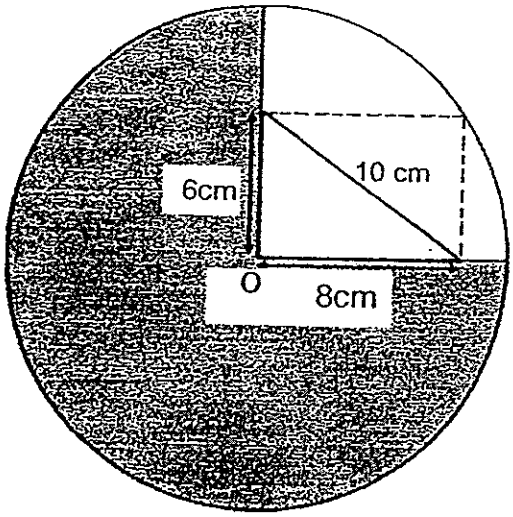
Answer : $_____

SCORE

(Go on to the next page)

5. A rectangle is placed in a circle with O as the centre. Use the calculator value of π to find the shaded part of the circle. Correct your answer to 2 decimal places.

Do not write in this space.



Answer : _____ cm^2

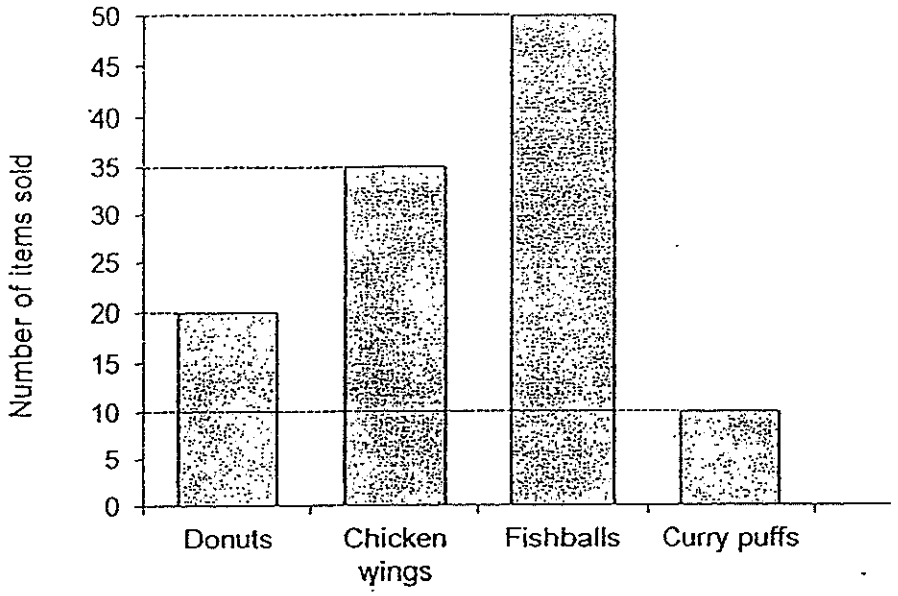
SCORE

(Go on to the next page)

For Questions 6 to 18, show your working clearly in the space below each question and write your answer in the spaces provided. The number of marks available is shown in the brackets ( ) at the end of each question or part-question. (50 marks)

Do not write in this space.

6. The bar graph below shows the number of food items sold at a carnival.



(a) Find the total number of items sold at the carnival.

(b) $97.50 was collected from selling the donuts, chicken wings and fishballs at the carnival. The prices of these items were in the ratio 2 : 3 : 1. How much was each chicken wing sold for?

Answer : (a) _____ [1]

(b) _____ [2]

SCORE

7. The table shows the number of pens sold at a bookshop last week.

Day	Number of pens sold
Monday to Friday	$2p$ per day
Saturday	$p + 40$
Sunday	$3p - 5$

(a) What was the total number of pens sold last week?
Express your answer in terms of p in the simplest form.

(b) If $p = 30$, how many pens were sold on Sunday?

Answer : (a) _____ [2]

(b) _____ [1]

Do not write in this space.

8. Box A contains only 50¢ coins while Box B contains only 20¢ coins.
There are 19 more coins in Box B than in Box A.
The total amount of money in Box A and Box B is $15.
How many 50¢ coins can all the 20¢ coins in Box B be changed into?

Answer : _____ [3]

SCORE

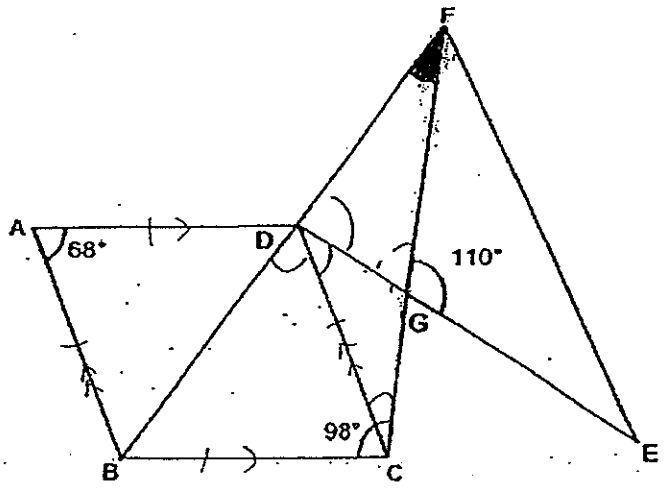
(Go on to the next page)

9. At a concert, $\frac{3}{8}$ of the audience were boys. $\frac{1}{2}$ of the remaining audience were girls. There were 120 women and the number of men was $\frac{2}{3}$ the number of women. How many people were there in the audience?

Do not write in this space.

Answer : _____ [3]

10. The figure below is not drawn to scale. ABCD is a rhombus and ∠BCF is 98°. BDF, CGF, EGD are straight lines. Find ∠DFG.



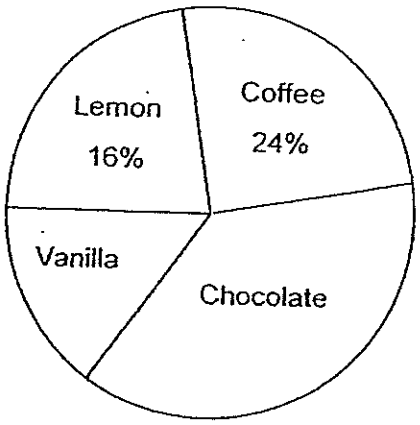
Answer : _____ [3]

SCORE

(Go on to the next page)

11. Some people participated in a survey to select their favourite of ice-cream flavour. The pie chart below shows the results of the survey. The ratio of the number of people who prefer vanilla to chocolate flavour is 1 : 3.

Do not write in this space.



(a) What percentage of the participants prefer vanilla flavour?

(b) If 10% of the participants who selected lemon as their favourite flavour had selected coffee instead, how many per cent of the participants selected coffee as their favourite flavour?

Answer: (a) [1]

(b) [2]

SCORE
(Go on to the next page)

12. Singapore and Kuala Lumpur is 375 km apart. Raphael left Singapore for Kuala Lumpur at 10.00 a.m. travelling at an average speed of 75 km/h.
Sean left Singapore later than Raphael and caught up with him at 12.00 noon. Sean was travelling at a speed of 90 km/h.

Do not write in this space.

(a) At what time did Sean leave Singapore?

(b) How much later did Raphael arrive in Kuala Lumpur than Sean?

Answer: (a) _____ [2]

(b) _____ [2]

SCORE

13. The figures below are not drawn to scale. Figure 1 shows a rectangular piece of paper ACDF that measures 18 cm by 14 cm. AB = ED = 5 cm.
The paper is folded along the dotted line BE such that point C touches point F, as shown in Figure 2.

Do not write in this space.

Figure 1

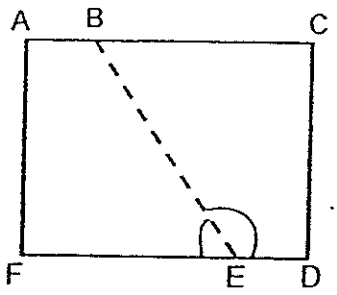
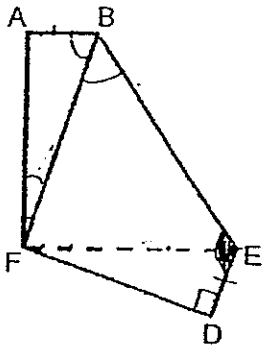


Figure 2



(a) Find the area of Figure 2, ABEDF, after the folding.

(b) In Figure 2, ∠ABC is 76°. Find ∠BED in Figure 2.

Answer: (a) _____ [2]

(b) _____ [2]

SCORE

(Go on to the next page)

14. Haoming made patterns using triangles, circles and sticks and recorded the pattern in the table shown below.

Do not write in this space.

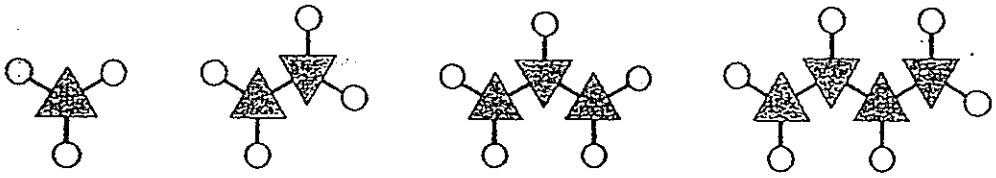


Figure 1 Figure 2 Figure 3 Figure 4

Figure number	Number of circles	Number of sticks
1	3	3
2	4	5
3	5	7
4	6	9
...	...	...
20	(a)	(b)
...	...	...
(c)	...	115

(a) How many circles are needed for Figure 20?

(b) How many sticks are needed for Figure 20?

(c) Which Figure needs a total of 115 sticks?

Answer: (a) _____ [1]

(b) _____ [2]

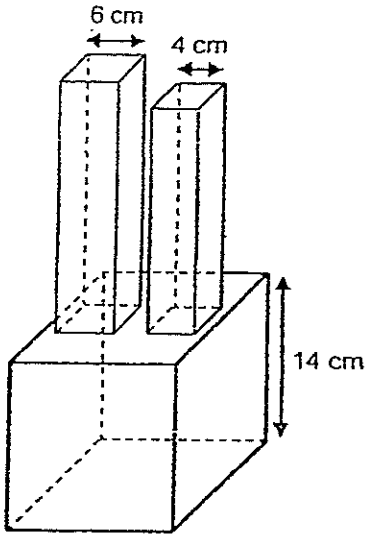
(c) _____ [2]

SCORE

(Go on to the next page)

15. The figure shows an empty transparent vase made from three containers. The two containers on top are in the form of cuboids which have square bases of side 6 cm and 4 cm as shown in the figure. The bottom container is in the form of a cube of side 14 cm.

Do not write in this space.



3.42 ℓ of water are poured into the empty vase. Find the height of the water level from the base of the vase. (1 litre = 1000 cm^3)

Answer: _____ [5]

SCORE

(Go on to the next page)

16. A fruit seller has some apples and pears.
If he sells twice as many pears as the apples, he would have 207 apples left when all the pears are sold.
If he sells twice as many apples as the pears, he would have 72 apples left when all the pears are sold.

Do not write in this space.

(a) How many pears does the fruit seller have?

(b) Mrs Ong buys all the pears from the fruit seller. The price of a pear is 80¢.
For every 3 pears she buys, she gets one more at half the price.
How much does Mrs Ong pay for all the pears?

Answer: (a) _____ [3]

(b) _____ [2]

SCORE

17. On Friday, shirts in a shop were sold at $30 each.
On Saturday, a discount was given on all the shirts, and the number of shirts sold increased by 20%. The total amount of money collected increased by 14%.

(a) What was the price of a shirt sold on Saturday?

(b) What was the percentage discount given for each shirt on Saturday?

Do not write in this space.

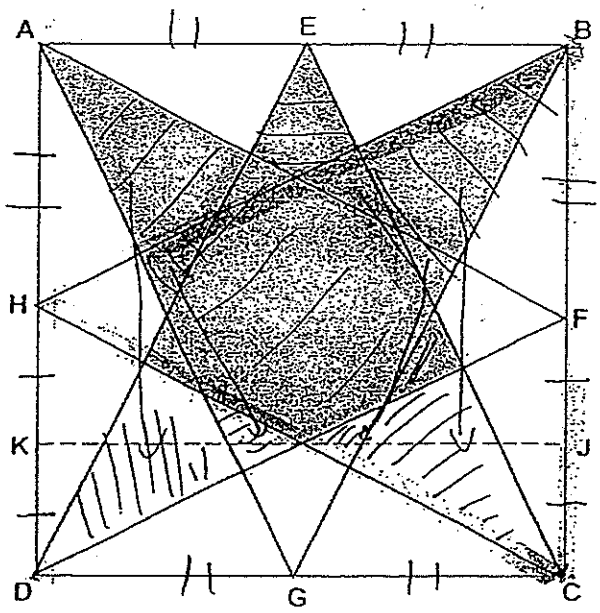
Answer: (a) _____ [3]

(b) _____ [2]

SCORE

18. The figure below is formed using four identical isosceles triangles, ABG, BCH, ADF and DCE. ABCD is a square where E, F, G and H are midpoints of its sides. Given FJ = CJ, HK = DK and AB = 14 cm, find the total area of the shaded parts.

Do not write in this space.



Answer : _____ [4]

End of Paper 2

SCORE

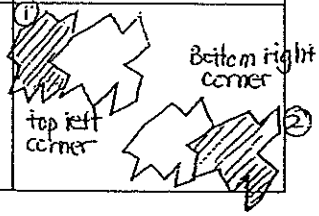
Maris Stella High School (Primary) P6 Preliminary Exam Mathematics 2014

Paper 1

Booklet A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3	2	1	4	1	3	4	2	4	1	2	1	2	2	3

Booklet B

16	12.023 kg	17	32	18	$8\frac{1}{20}$	19	11 h 30 min
20	20.4	21	6	22	3	23	2:5
24	24 cm^2	25	60	26	32	27	
28	$240	29	42 cm	30	84 m^3		

Paper 2

1 B : Y
2 : 3 3 units → 1.8 L; 1 unit → 1.8 L ÷ 3 = 0.6 L; 5 units → 0.6 L x 5 = **3** L

2 ∠CZH = ∠GCH = 60° ; ∠YCG = 180° – 60° – 82° = 38° ; ∠YGC = ∠ZCH = 82° ;
∠CHZ = 180° – 60° – 82° = **38°**

3 **86** marks

4 2 units → $80 + $35 + $35 = $150; 1 unit → 150 ÷2 = **$75**

5 radius → 10cm; Shaded part → ¾ x Π x 10 cm x 10 cm = **235.62 cm^2** (to 2 decimal places)

6 a **115** items b **$1.50**

7 a Monday to Friday → 2p x 5 = 10p
Saturday and Sunday → p + 40 +3p – 5 = 4p + 35
Total number of pens → 10p + 4p + 35 = **(14p + 35) pens**
b Sold on Sunday → 3 x 30 – 5 – 90 – 5 = **85 pens**

8 **14** 50-cents coins

9 **640** people

10 ∠BDC → (180° – 68°) ÷ 2 = 56° = ∠FBC; ∠DFG → 180° – 56° – 98° = **26°**

11 a **15%** b Percentage of coffee = 32÷125 x 100% = $25\frac{2}{5}\%$

12 a **10.20 am** b Distance travelled after 12 noon = 375 km – 150 km = 225 km
Time Sean took → 225 km ÷ 90 km/h = 2 ½ h
Time Raphael took → 25 km ÷ 75 km/h = 3 h
Difference in time = **½ h** later

13 a **161 cm^2** b **128°**

14 a No. of circles in Figure 20 → 20 x 1 + 2 = **22**
b No. of sticks in Figure 20 → 20 x 2 + 1 = **41**
c Figure with 115 sticks = (115-1) ÷ 2 = **57**

15 3.42 L = 3420 cm^3; volume of cube → 14 cm x 14 cm x 14 cm = 2744 cm^3
Volume of water in two cuboids → 3420 cm^3 – 2744 cm^3 = 676 cm^3
Base area of both cuboids → 6 cm x 6 cm + 4 cm x 4 cm = 52 cm^2
Height of water in two cuboids → 676 cm^3 ÷ 52 cm^2 = 13 cm
Water level = 13 cm + 14 cm = **27 cm**

16 Case 1 – Pears (P) : Apples (A) = 2 : 1; Case 2 – P : A = 1 : 2 = 2 : 4
a 3 units → 207 – 72 = 135; 1 unit → 135 ÷ 3 = 45; 2 units → 45 x 2 = **90**
b No. of sets → 90 ÷ 4 = 22R2; 1 set → 3 x $0.80 + ½ x $0.80 = $2.80
Total paid = $2.80 x 22 + 2 x $0.80 = **$63.20**

17 a **$28.50** b **5%**

18 ½ x 14 x 14 = 98; 14÷4 = 3.5; ½ x 14 x 3.5 = 24.5; 98-24.5 = **73.5 cm^2**