Index No. | | | | | | |

PRELIMINARY EXAMINATION – 2016
PRIMARY 6

MATHEMATICS

Paper 1

Section A: 15 Multiple Choice Questions (20 marks)

Section B: 15 Short Answer Questions (20 marks)

Total Time for Paper 1: 50 minutes

INSTRUCTION TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided for Questions 1-15.
6. You are not allowed to use calculator for Paper 1.

Marks Obtained

Paper 1	Booklet A		/ 40
	Booklet B		
Paper 2			/ 60
Total			/ 100

Name : _____ ( )

Class : 6_____

Date : 24 August 2016 **Parent's Signature :**_____

Section A (20marks)

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 oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which digit in 1 285 697 is in the ten thousands place?

   (1) 5
   (2) 2
   (3) 6
   (4) 8

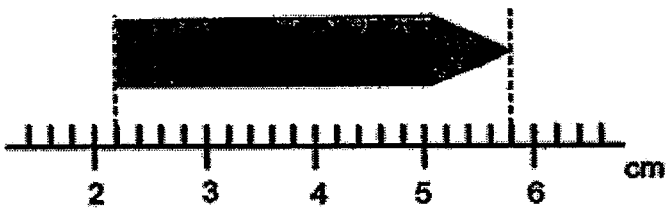
2. Find the value of 64.5×100.

   (1) 0.645
   (2) 6.45
   (3) 645
   (4) 6 450

3. There are 19 938 seats in a football stadium. Round the number of seats to the nearest hundred.

   (1) 19 000
   (2) 19 900
   (3) 19 940
   (4) 20 000

4. What is the length of the pencil shown below?



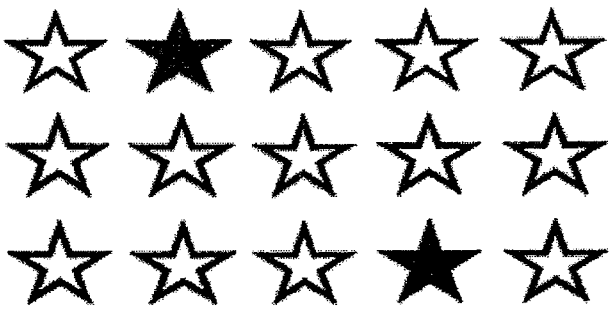
(1) 3.6 cm

(2) 3.8 cm

(3) 5.8 cm

(4) 5.9 cm

5. How many more stars must be shaded so that the fraction of the number of shaded stars is $\frac{1}{3}$ of the total number of stars?



(1) 1

(2) 2

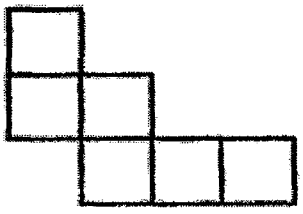
(3) 3

(4) 5

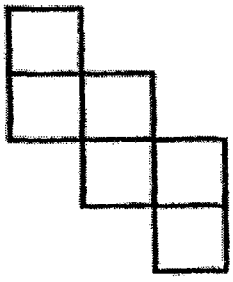
6. The figure below shows a cube.

Which one of the following is **not** a possible net of the cube?

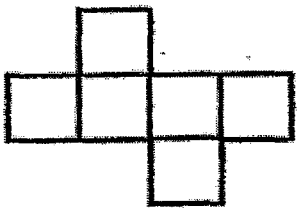
(1)



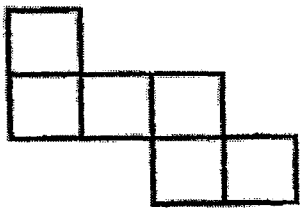
(2)



(3)



(4)



7. The distance between Mr Goh's house and his workplace is 5 km. He jogs at 10 km/h to his workplace every day. If he cycles at 15 km/h, how much faster will he be?

(1) 10 minutes

(2) 20 minutes

(3) 30 minutes

(4) 60 minutes

8. The ratio of the number of boys to the number of girls in a class is 2 : 3. There are 30 pupils in the class. How many girls are there?

(1) 12

(2) 18

(3) 20

(4) 45

9. Mary saved $40 last month. She saved $50 this month.
Find the percentage increase in her savings this month.

(1) 20%

(2) 25%

(3) 80%

(4) 125%

10. Mrs Ng has $\frac{9}{10}$ kg of flour. She uses $\frac{3}{5}$ of it to make some tarts. Find the mass of the remaining flour.

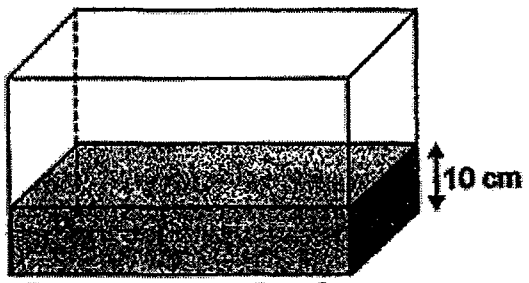
(1) $\frac{3}{10}$ kg

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

(3) $\frac{9}{25}$ kg

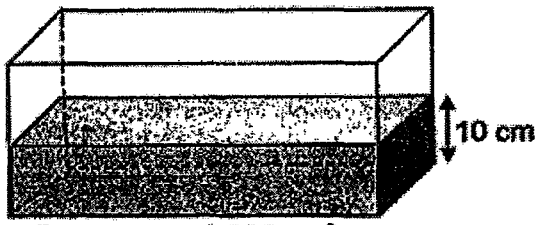
(4) $\frac{27}{50}$ kg

11. Two rectangular tanks are shown below. The base areas of Tank A and Tank B are 1 500 cm^2 and 1 200 cm^2 respectively. At first, Tank A contained some water while Tank B was empty. Some water from Tank A was then transferred to Tank B such that the height of the water level in each tank became 10 cm as shown below. What was the volume of water in Tank A at first ?



Base area = 1 500 cm^2

Tank A



Base area = 1 200 cm^2

Tank B

(1) 3 000 cm^3

(2) 6 000 cm^3

(3) 27 000 cm^3

(4) 54 000 cm^3

12. After Adam had spent $\frac{3}{5}$ of his money and Bala had spent $\frac{2}{3}$ of his money, they had the same amount of money left. Express in ratio, the amount of Adam's money at first to the amount of Bala's money at first.

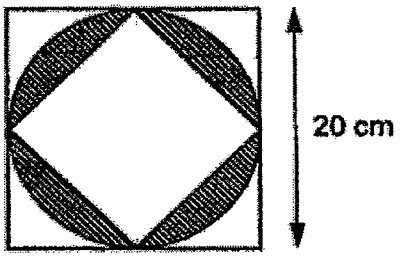
(1) 5 : 3

(2) 5 : 6

(3) 8 : 5

(4) 9 : 10

13. In the figure below, a circle is touching two squares at exactly four points. Given that the side of the bigger square is 20 cm, find the area of the shaded parts. (Leave your answer in terms of π)



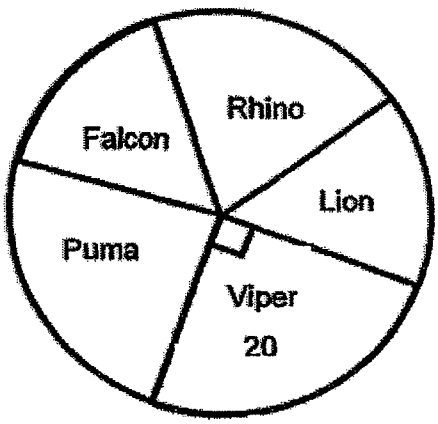
(1) $(100\pi - 100)$ cm^2

(2) $(100\pi - 200)$ cm^2

(3) $(400 - 100\pi)$ cm^2

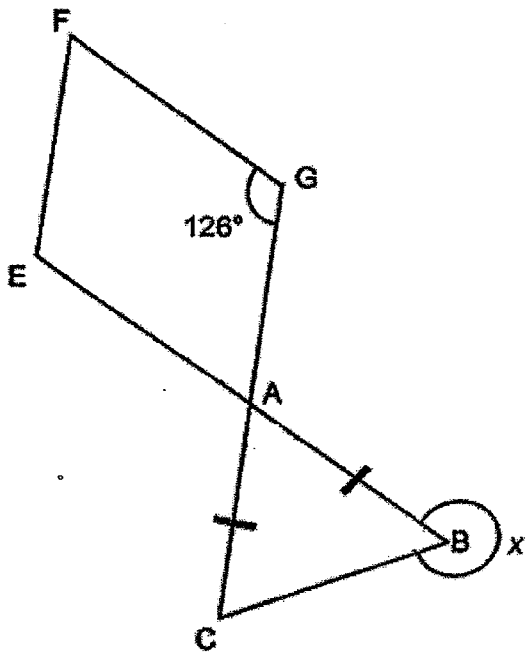
(4) $(600 - 100\pi)$ cm^2

14. The pie chart below shows the Houses that a group of pupils belong to. The number of pupils who belong to Falcon and Lion is the same. There are 3 more pupils in Rhino than Lion. $\frac{1}{5}$ of the pupils belong to Rhino and there are 20 pupils in Viper. How many pupils are there in Puma?



(1) 13
(2) 15
(3) 16
(4) 18

15. The figure below, not drawn to scale, shows a triangle ABC and a parallelogram AEFG. EB and GC are straight lines. Given that AB = AC and $\angle FGA = 126°$, find $\angle x$.



(1) 333°

(2) 306°

(3) 300°

(4) 297°

Section B (20 marks)

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. Find the value of $20 - (25 - 10) \div 5 \times 3$

Ans: _____

17. Find the value of $\frac{1}{6} \div \frac{4}{9}$

Give your answer in the simplest form.

Ans: _____

18. Find the value of $8w - \frac{3w}{2}$ if $w = 4$.

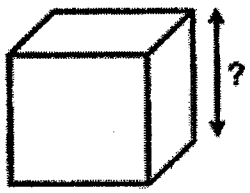
Ans: _____

19. Jane took 10 minutes to cycle from her house to the park which was 3 km away. What was Jane's average speed?

Ans: _____ km/h

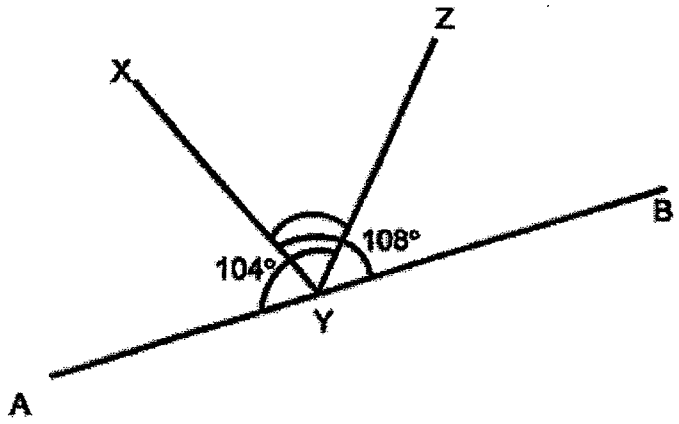
Do not write in this space

20. Find the edge of a cube given that its volume is 27 cm^3.



Ans: _____ cm

21. In the figure below, AYB is a straight line. Given that ∠AYZ = 104° and ∠XYB = 108°, find ∠XYZ.



Ans: _____°

22. The table below shows the number of books read by a class in a week.

Number of books read per pupil	Number of pupils
1	13
2	21
More than 2	4

What fraction of the pupils read less than 2 books in that week?

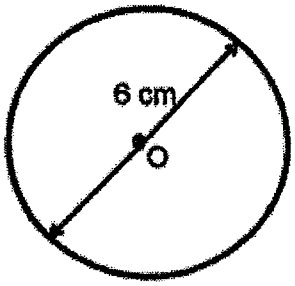
Ans: _____

Do not write in this space

23. For every $2 Rachel saved in her piggy bank, her mother would put in another $1. If there was $216 in her piggy bank, how much of it was contributed by Rachel?

Ans: $ _____

24. Find the area of a circle which has a diameter of 6 cm. (Take $\pi = 3.14$)



Ans: _____ cm^2

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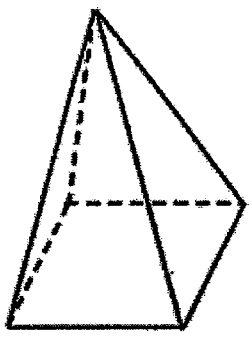
25. Shade only 4 of the triangles in Figure 1 to make it a possible net of the Pyramid as shown below.



Pyramid

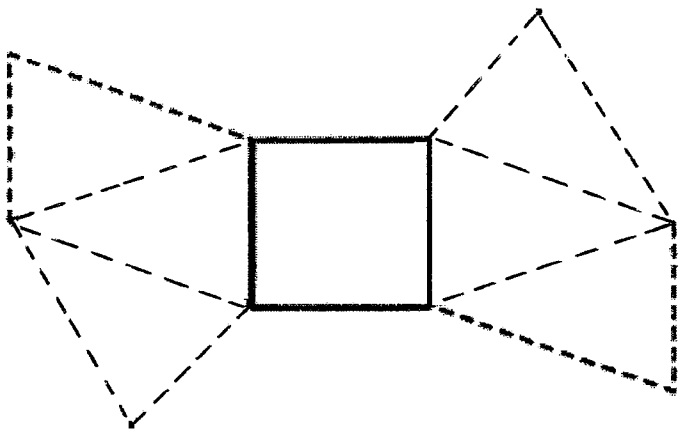
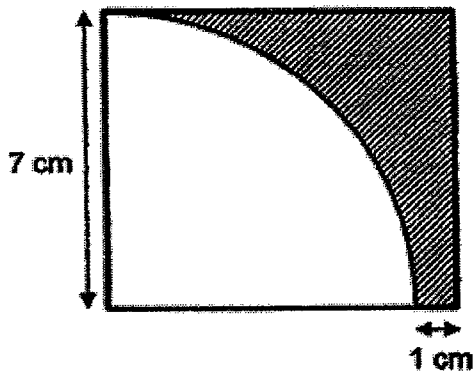


Figure 1

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 each questions which require units, give your answers in the units stated. [10 marks]

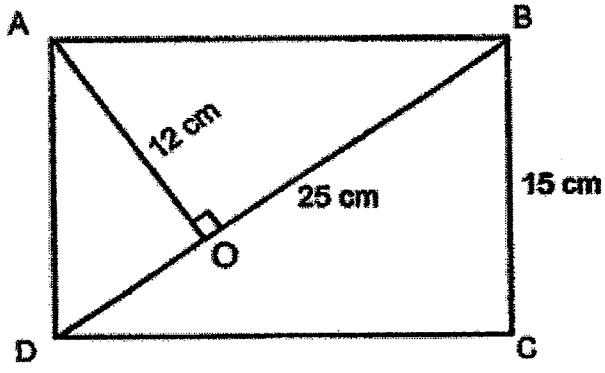
Do not write in this space

26. The figure below shows a quarter circle in a rectangle. Find the area of the shaded part. (Take $\pi = \frac{22}{7}$)



Ans: _____ cm^2

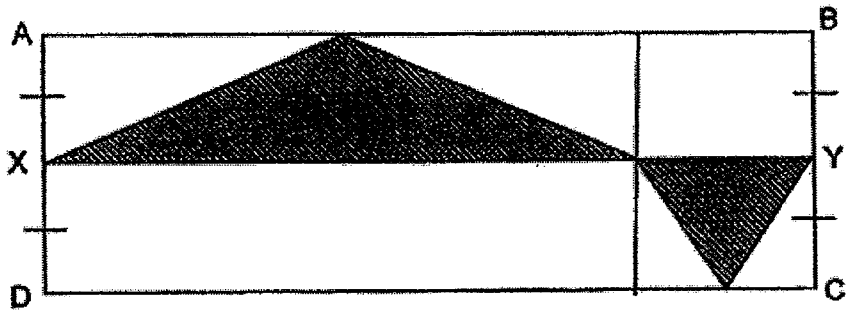
27. In the figure below, not drawn to scale, ABCD is a rectangle. Given that AO = 12 cm, BC = 15 cm and DB = 25 cm, find the length of DC.



Ans : _____ cm

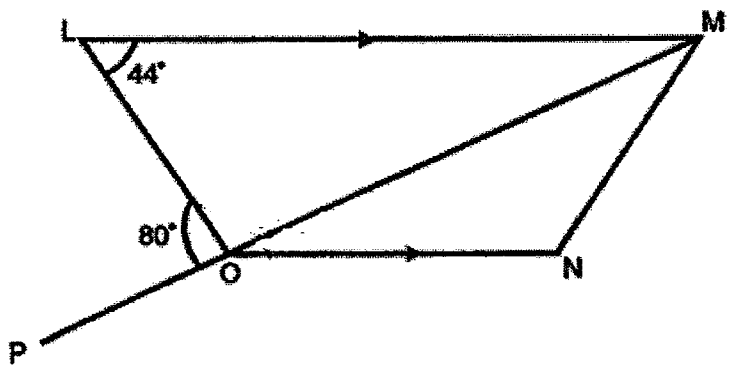
28. In the figure below, not drawn to scale, the area of Rectangle ABCD is 168 cm². Given that AX = XD and BY = YC, find the total area of the unshaded parts.

Do not write in this space



Ans : _____ cm²

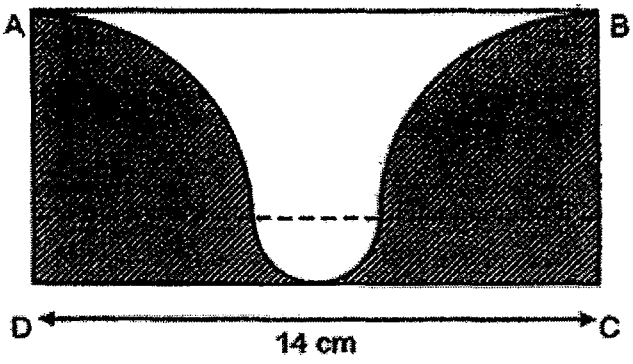
29. In the figure below, not drawn to scale, LMNO is a trapezium with LM parallel to ON, and MOP is a straight line. Find ∠MON.



Ans : _____

30. The figure below, not drawn to scale, shows a rectangle ABCD, 2 identical quadrants and a semicircle. Given that DC = 14 cm, find the total perimeter of the shaded parts.

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



Do not write in this space

Ans: _____ cm

END OF PAPER

Index No. | | | | | | |

PRELIMINARY EXAMINATION – 2016
PRIMARY 6

MATHEMATICS

Paper 2

Total Time for Paper 2: 1 hour 40 minutes

5 Short Answer Questions (10 marks)

13 Structured / Long Answer Questions (50 marks)

INSTRUCTION TO CANDIDATES

1. **Write your name and index number in the space provided.**
2. **Do not turn over the page until you are told to do so.**
3. **Follow all instructions carefully**
4. **Answer all questions and show your workings clearly.**
5. **You are allowed to use a calculator.**

Marks Obtained

Total		**/ 60**

Name : _____ ( )

Class : 6_____

Date : 24 August 2016 **Parent's Signature :**_____

Paper 2 (60 marks)

Questions 1 to 5 carry 2 marks each. Show your workings clearly in the space below it and write your answer in the space provided. Give your answers in the units stated.

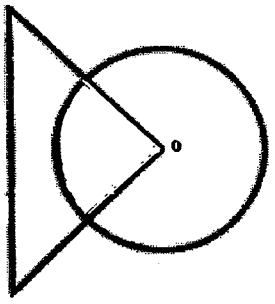
Do not write in this space

1. Jason has k erasers. Mervin has twice as many erasers as him. Ian has 6 lesser erasers than Mervin. Express the total number of erasers the 3 boys have in terms of k.

Ans: _____

2. The figure below is made up of a right-angled triangle and a circle whose centre is O. The area of the triangle is $\frac{2}{3}$ the area of the circle.

What fraction of the figure is shaded?



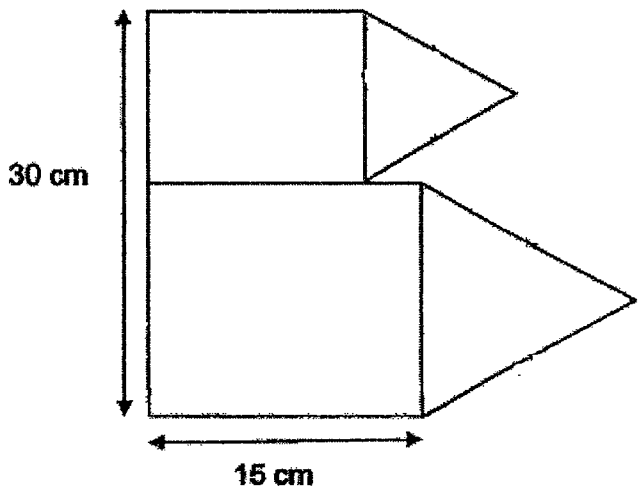
Ans: _____

3. Mrs Heng bought 3 chocolate muffins for $4 and 5 blueberry muffins for $8. What is the average price of a muffin?

Do not write in this space

Ans: $ _____

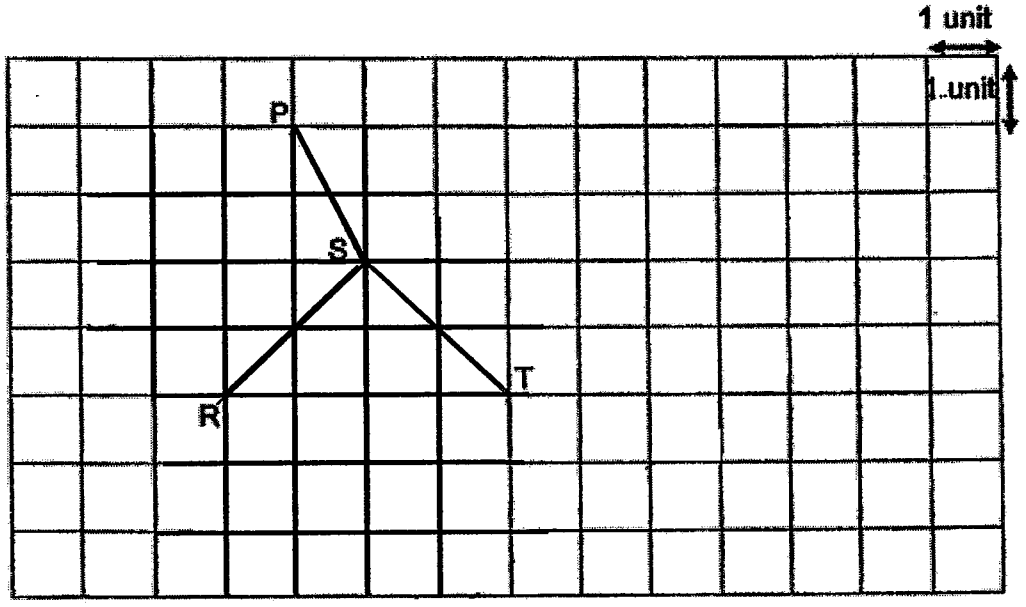
4. The figure below, not drawn to scale, is made up of 2 equilateral triangles and 2 rectangles. Find the perimeter of the figure.



Ans: _____ cm

5. In the square grid, SR is one side of a parallelogram PQRS and also one side of a rhombus, RSTU. Complete and label the drawing of the parallelogram PQRS and rhombus RSTU within the grid.

Do not write in this space



For each question from 6 to 18, show your workings clearly in the space below it and write your answer in the space provided. The number of marks available is shown in brackets [ ] at the end of each question or part-question.
Remember to include the units wherever possible.

---

6. The average mass of a group of children was 36.5 kg. John's mass was 46.5 kg. John joined the group of children and the average mass became 38.5 kg. How many children were there in the group at first?

Do not write in this space

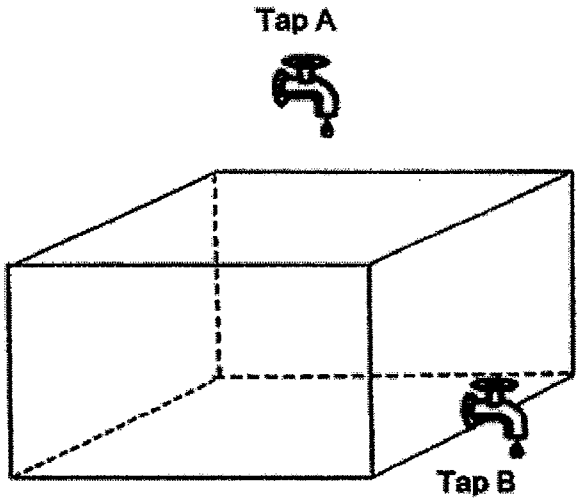
Ans: _____ [3]

7. Mr Goh and Mr Lee ~~starting~~ driving in opposite directions from the same starting point. Mr Goh's average speed was 12km/h faster than Mr Lee's average speed. They were 90 km apart after 45 minutes. What was Mr Goh's average speed?

Ans: _____ [3]

8. An empty rectangular tank has a Tap B attached to it and a Tap A above it. Tap A takes 2 minutes to fill up the tank completely. Tap B can drain water out of the tank, if it was filled completely, in 3 minutes. If both taps are turned on at the same time, what is the capacity of the tank if it contains 80 litres of water after 5 minutes?

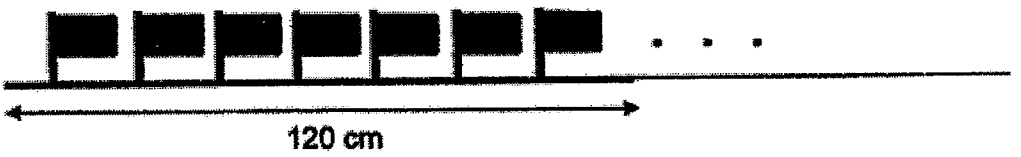
Do not write in this space



Ans: _____ [3]

9. Flags are on display along two sides of a road. On one side, there are 7 identical rectangular flags along every 120 cm. On the other side, there are 3 identical triangular flags along every 40 cm as shown in the diagram below.

Do not write in this space



120 cm

40 cm

Row 2

There are 196 more triangular flags than rectangular flags from the start till the end of the road. How long is the road?

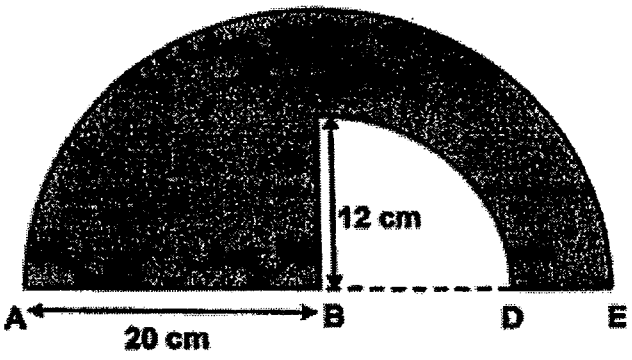
Ans: _____ [3]

10. The figure below, not drawn to scale, shows a quarter circle in a semicircle with centre B.

Given that AB is 20 cm, BC is 12 cm and $\pi = 3.14$. find

(a) the area of the shaded part.

(b) the perimeter of the shaded part.



Do not write in this space

Ans: (a) _____ [2]

(b) _____ [3]

11. Basket A and Basket B each contained some red and green apples. The ratio of the number of apples in Basket A to the number of apples in Basket B was 7 : 6 at first. $\frac{3}{7}$ of the apples in Basket A and $\frac{7}{12}$ of those in Basket B were red. Some red apples were moved from Basket B to Basket A. Thereafter, some green apples were moved from Basket A to Basket B. In the end, there was an equal number of red and green apples in each basket. If a total of 36 apples were moved, how many apples were there in Basket A at first?

Do not write in this space

Ans: _____ [3]

12. Michael bought two pairs of pants and three shirts for $92.30. With the remaining money, he could not buy another pair of pants as he was short of $3.70. Instead, he bought another shirt and had $1.20 left.

Do not write in this space

(a) How much more did a pair of pants cost than a shirt?

(b) How much money did Michael have at first?

Ans: (a) _____ [1]

(b) _____ [3]

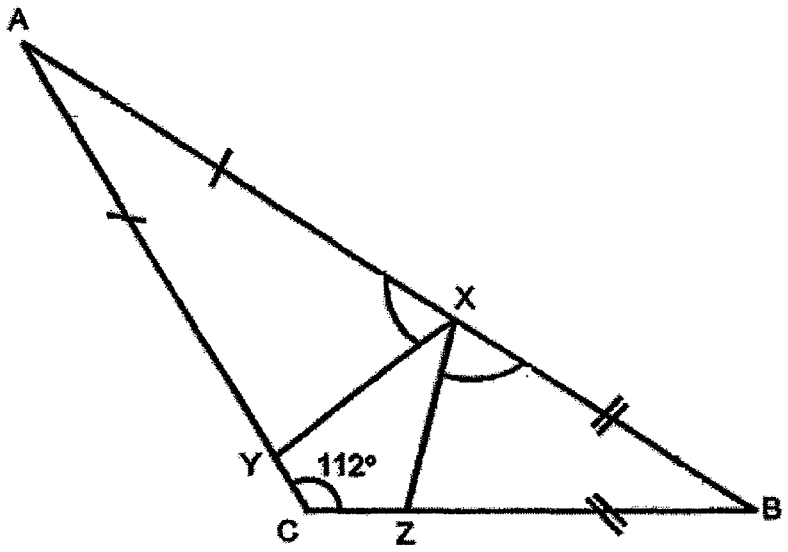
13. May had some local and foreign stamps. 70% of her stamps were local stamps. After using 30 local stamps, the number of local stamps decreased to 40% of the total number of stamps in the end. How many stamps did May have at first?

Do not write in this space

Ans: _____ [4]

14. In the figure below, not drawn to scale, ABC is a triangle. X, Y and Z are points on the triangle such that AY = AX and BX = BZ.

If ∠ ACB = 112°, find the sum of ∠AXY and ∠BXZ.



Do not write in this space

Ans: _____ [3]

15. Jack and Kate had some money. If Jack gave Kate $20, the ratio of Jack's money to Kate's money became 3 : 5. If Jack gave Kate $70, the ratio of Jack's money to Kate's money became 1 : 3. How much did each of them have?

Do not write in this space

Ans: _____ [5]

16. Fatimah baked some tarts to sell. $\frac{2}{5}$ of them were durian tarts and the rest were orange tarts. After selling 120 durian tarts and $\frac{5}{6}$ of the orange tarts, she had $\frac{1}{5}$ of the original number of tarts left. How many

Do not write in this space

Ans: _____ [5]

17. Isaac drew some dots and triangles (of different sizes) in a certain pattern. The first four figures are shown below.

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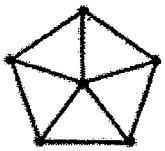


Figure 1

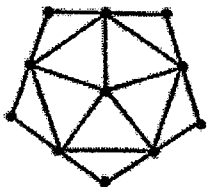


Figure 2

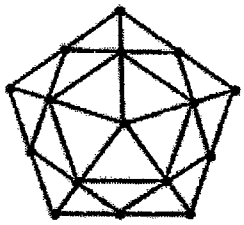


Figure 3

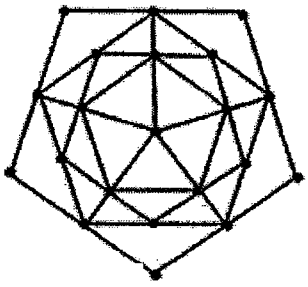


Figure 4

(a) Study the above figures and complete the table for Figure 5.

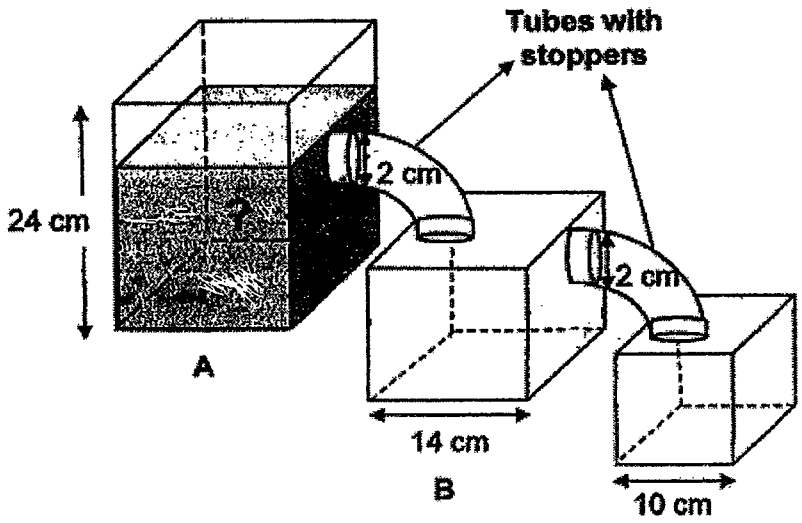
Figure number	Number of dots	Number of non-overlapping triangles
1	6	5
2	11	10
3	16	20
4	21	25
5	(i)_____ [1]	(ii)_____ [1]

(b) In which Figure number will there be 230 non-overlapping triangles?

Ans: (b) _____ [2]

18. The figure below shows 3 Tanks, A, B and C. Tank A has a height of 24 cm. Tank B measures 14 cm on every edge and Tank C measures 10 cm on every edge. Tanks A and B each has a tube of diameter 2 cm and a stopper attached. At first, Tank A is $\frac{3}{4}$ filled with water while Tanks B and C are empty. When the stoppers of both Tanks A and B are removed at the same time, water will flow out of Tank A until the water level in Tank C reaches a height of 2 cm. Assuming that no water is lost during the process, find the volume of water in Tank A at first.

Do not write in this space



Ans: _____ [5]

End-of-Paper

ANSWER SHEET

EXAM PAPER 2016

SCHOOL : NAN HUA

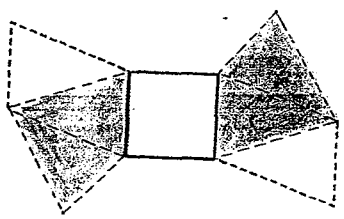
SUBJECT : MATHEMATICS

TERM : SA2

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

16)11 17)3/8 18)26 19)18km/h 20)3 cm

21)32° 22)13/38 23)$144 24)28.26cm2 25)



26)7 x 8 =56

22/7 x 7 x 7 = 38.5

56 – 38.5 = 17.5cm2

27)½ x 12 x 25 = 150

150 x 2 = 300

300 ÷ 15 = 20cm

28)168 x ¾ = 126 cm2

29)180 – 44 = 136

180 – 80 = 100

136 – 100 = 36°

30) ½ x 22/7 x 14 = 22

22 + 14 + 14 = 50 cm

Paper 2

1)K x 2 = 2K

2K – 6 = (2K – 6)

K + 2K + (2K – 6)

Ans: (5K – 6)

2)2/3 = 8/12

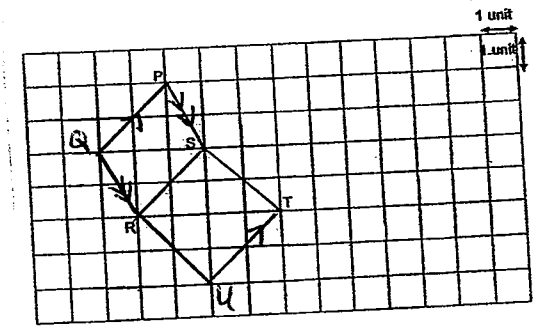
Ans: 3/17

3)12 ÷ 8 = $1.5

4)30 x 2 = 60

30 + 15 +15 + 60 = 120 cm

5)



6)46.5 – 38.5 = 8

38.5 – 36.5 = 2

8 ÷ 2 = 4

7)90 ÷ 3 x 4 = 120

120 ÷ 12/2 = 66 km/h

8)80 ÷ 5 = 16

16 x 6 = 96

Ans : 96000cm3

9)3 x 3 = 9

196 ÷ 2 = 98

98 x 120 = 11760 cm

10)a) ½ x 3.14 x 20 x 20 = 628

¼ x 3.14 x 12 x 12 = 113.04

628 – 113.04 = 514.96 cm2

b) ½ x 3.14 x 40 = 62.8

¼ x 3.14 x 24 = 18.84

20 + 12 + 8 = 40

62.8 + 18.84 + 40 = 121.64 cm

11)7 – 6 / 2 = 0.5

8 – 5 / 2 = 1.5

36 ÷ 2 = 18

18 x 14 = 252

12)a)1.2 + 3.7 = $4.90

b)4.9 x 2 = 9.8

92.3 – 9.8 = 82.5

82.5 ÷ 5 = 16.5

16.5 + 1.2 = 17.7

92.3 + 17.7 = $110

13)14 – 4 = 10

30 ÷ 10 = 3

3 x 20 = 60

14)180 – 112 = 68

360 – 68 = 292

292 ÷ 2 = 146°

15)3p + 20 → 1u + 70

8p → 4u

2p → u

3p + 20 → 2p + 70

2p → 2p + 50

P → 50

3p → 150

150 + 20 = 170

5p → 250

250 – 20 = 230

Kate : $230

Jack : $170

16)120 → 3u

u → 40

5u → 200

200 + 120 = 320

17)a)i)26

ii)35

b)230 – 5 = 225

225 ÷ 150 = 15

15 x 2 + 1 = 31

18)12 x 14 x 14 = 2352

10 x 2 x 10 = 200

200 + 2352 = 2552

2552 ÷ 2 = 1276

1276 x 18 = 22968 cm_2