



NAN HUA PRIMARY SCHOOL
PRELIMINARY EXAMINATION – 2010
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 Aug 2010

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. About 11 000 people participated in the 10-km run when rounded off to the nearest thousand. Which could be the possible number of people?

(1) 10 099

(2) 10 505

(3) 11 500

(4) 11 909

()

2. Which one of the following shapes does not tessellate?

(1)



(2)



(3)



(4)



()

3. Evaluate $\frac{2}{7} \div \frac{1}{3}$

(1) $\frac{2}{7} \times \frac{1}{3}$

(2) $\frac{2}{7} \times \frac{3}{1}$

(3) $\frac{7}{2} \times \frac{1}{3}$

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

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4. Half a dozen shirts cost \$ n. What is the cost of 12 such shirts?

(1) \$ 2n

(2) \$ 3n

(3) \$ 6n

(4) \$ 12n

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5. Alan is 20 % taller than Ben. Charlie is 20 % shorter than Ben. If Alan is 180 cm tall, what is Charlie's height?

(1) 120 cm

(2) 140 cm

(3) 150 cm

(4) 160 cm

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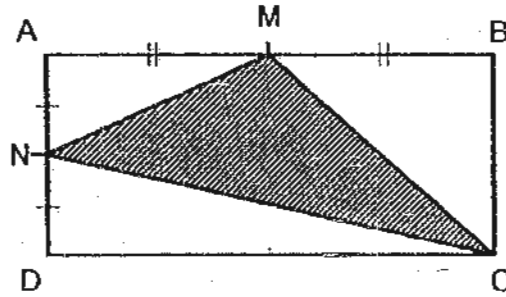
6. ABCD is a rectangle where $AM = MB$ and $AN = ND$.
What fraction of the rectangle is shaded?

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

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

(3) $\frac{3}{8}$

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



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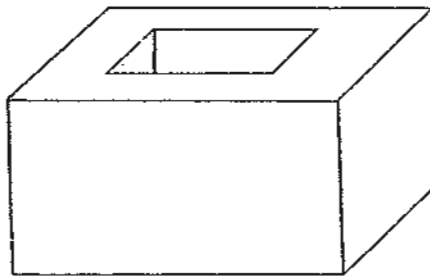
7. The diagram below shows a wooden block with a hole cut through it from the top surface to the bottom surface. If both the wooden block and the hole are cuboids, how many faces does the solid have?

(1) 6

(2) 8

(3) 10

(4) 12



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8. A man travels from Town X to Town Y in 25 minutes and from Town Y to Town X in 20 minutes via the same route. His average speed for the whole journey is 80 km/h. Find the distance from Town X to Town Y.

(1) $26\frac{2}{3}$ km

(2) 30 km

(3) $33\frac{1}{3}$ km

(4) 60 km

9. The taxi-fare is as follows:

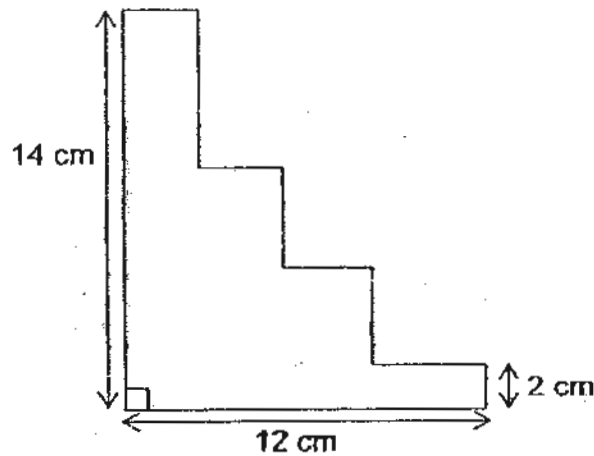
1 st kilometre	\$2.80
Every $\frac{1}{2}$ km or part thereof	\$0.50
From the airport, an additional surcharge per trip	\$3.00

Mr Ong boarded a taxi from the airport. How much will he have to pay for a journey of $6\frac{3}{4}$ km?

- (1) \$ 5.80
- (2) \$ 8.80
- (3) \$10.00
- (4) \$11.80

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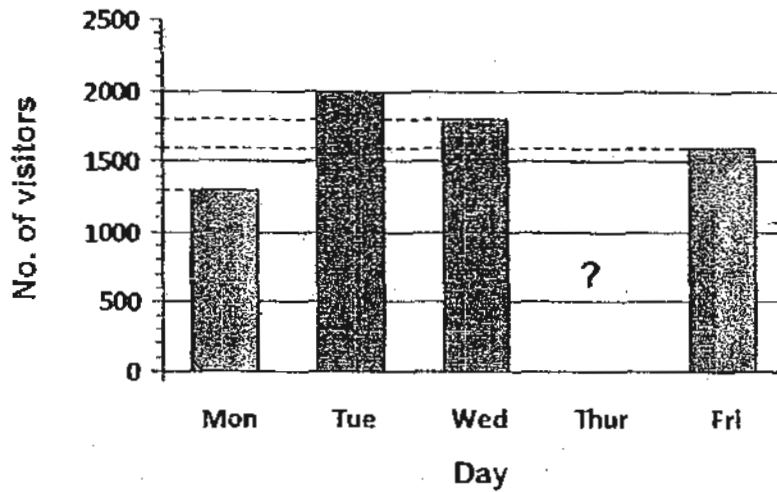
10. The figure below is not drawn to scale. Find its perimeter.



- (1) 28 cm
- (2) 48 cm
- (3) 52 cm
- (4) 56 cm

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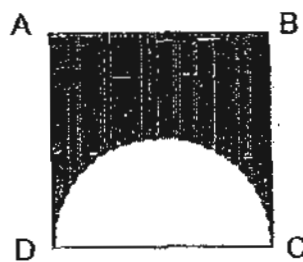
11. The graph below shows the number of visitors at the zoo from Monday to Friday. If the percentage of visitors decreased by 20% from Thursday to Friday, what is the number of visitors on Thursday?



- (1) 1620
 (2) 1920
 (3) 2000
 (4) 2200

()

12. ABCD is a square with a semi-circle of diameter 8 cm, cut from the side CD as shown. What is the area of the shaded portion in terms of π ?



- (1) $(64 - 32\pi) \text{ cm}^2$
 (2) $(64 - 16\pi) \text{ cm}^2$
 (3) $(64 - 8\pi) \text{ cm}^2$
 (4) $(64 - 4\pi) \text{ cm}^2$

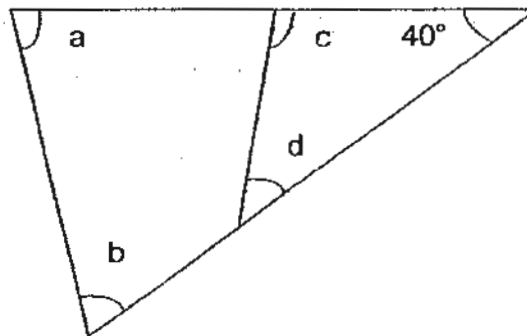
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13. A car left Town A and travelled towards Town B at an average speed of 90 km/h. At the same time, a lorry left Town B and travelled towards Town A at an average speed of 60 km/h. If the distance between Town A and Town B was 600 km, after how long would the two vehicles meet?

- (1) 10 hours
- (2) $8\frac{1}{3}$ hours
- (3) $6\frac{2}{3}$ hours
- (4) 4 hours

()

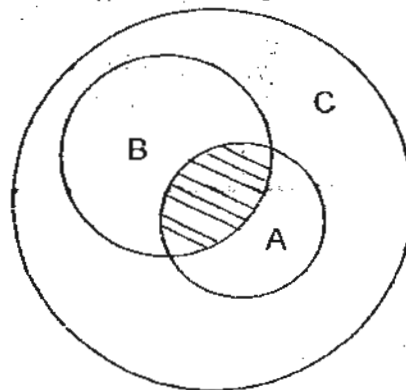
14. Look at the figure below. Find the sum of angles a, b, c and d.



- (1) 360°
- (2) 280°
- (3) 180°
- (4) 140°

()

15. In the figure, not drawn to scale, the ratio of the area of Circle A to area of Circle B to area of Circle C is 3 : 4 : 12. If $\frac{1}{3}$ of B is shaded, what is the ratio of the shaded part to the unshaded part of the figure?



- (1) 1 : 8
- (2) 1 : 9
- (3) 1 : 11
- (4) 1 : 18

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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]

16. What is the value in the box below?

$$52 \times 5.95 = 5.95 + 11.90 + 5.95 + \boxed{} \times 5.95$$

Ans : _____

17. $\frac{1}{6}$ of Alvin's money is equal to $\frac{2}{5}$ of Tom's money. Find the ratio of Alvin's money to Tom's money.

Ans : _____

18. When queuing up for lunch, Jim is the 13th pupil from the front and back of the queue. How many pupils are there in the queue?

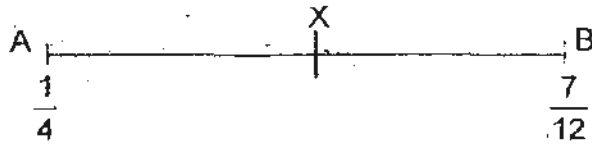
Ans : _____

19. Express 5.04 as a mixed number in its simplest form.

Ans : _____

Subtotal	/ 4
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20. Point X is between $\frac{1}{4}$ and $\frac{7}{12}$ such that $AX = XB$. What is the value of X?



Ans : _____

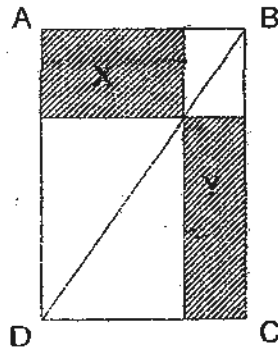
21. A lesson conducted at the Science Centre started at 2:30 p.m. and ended at 5:05 p.m. How long was the lesson? Give your answer in hours and minutes.

Ans : _____ h _____ min

22. Weiming takes 2 minutes to cut a metal rod into 5 pieces. How long does he take to cut the same rod into 25 pieces?

Ans : _____ min

23. The figure ABCD below is a rectangle. BD is a straight line. What is the ratio of area X to area Y?

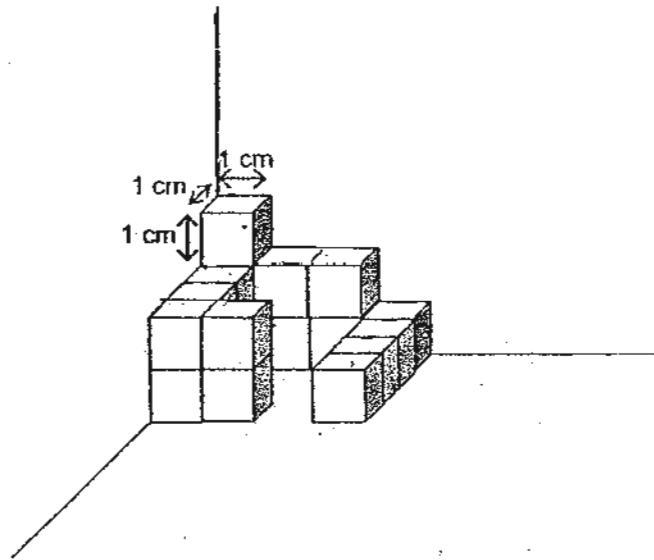


Ans : _____

8

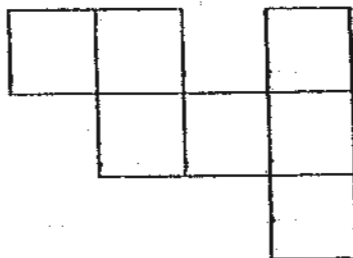
Subtotal	14
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24. The figure below shows a solid made up of identical cubes. What is the volume of the solid figure?



Ans : _____ cm^3

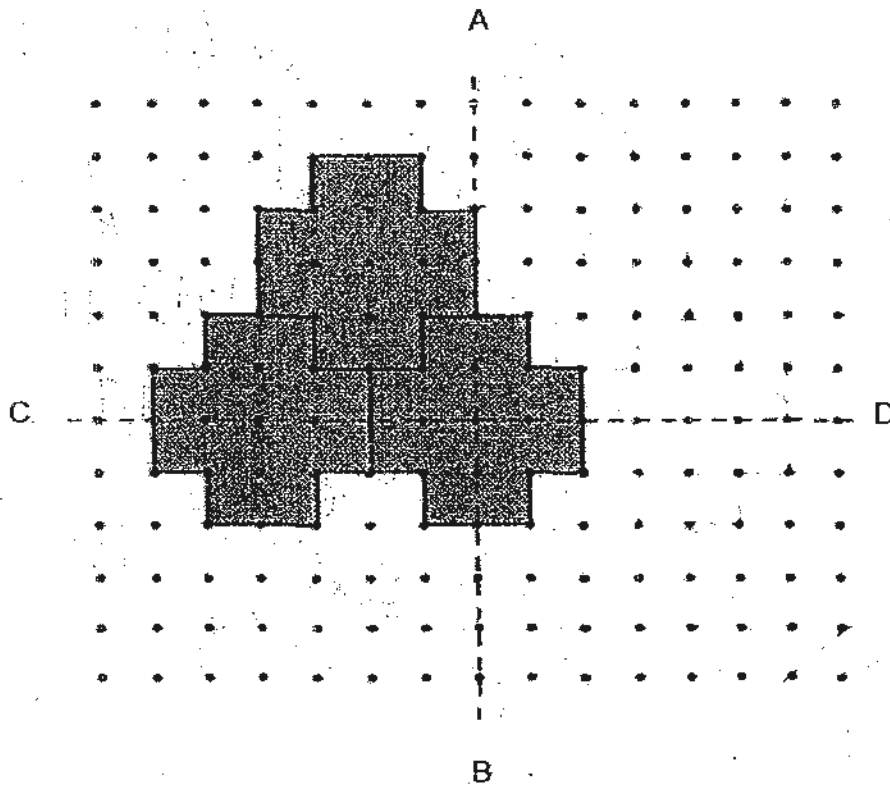
25. Cross out only 1 square from the figure below so that the remaining figure will become a net of a cube.



Subtotal	12
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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 question which requires units, give your answers in the units stated. [10 marks]

26. Extend the tessellation below by drawing another 2 unit shapes, such that the figure is symmetrical along line AB.



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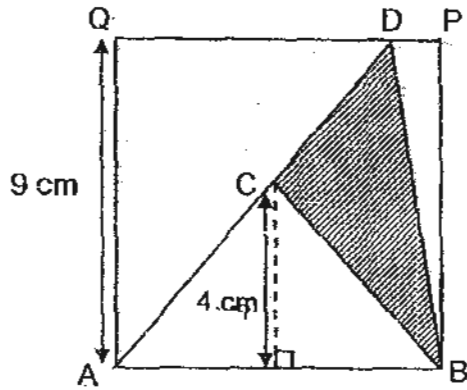
27. Zhang Yao has the same number of 20-cent coins and 50-cent coins. Their total value is \$ 42. How many coins does Zhang Yao have altogether?

Ans : _____

10

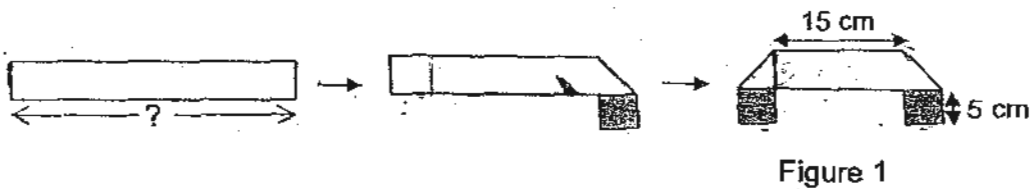
Subtotal	14
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28. The figure below, not drawn to scale, is made up of triangle ABC, triangle ABD and a square ABPQ. Find the area of the shaded part.



Ans : _____ cm^2

29. A rectangular strip of paper is folded to form 2 squares and a trapezium as shown in Figure 1. What is the length of the strip of paper before it was folded?



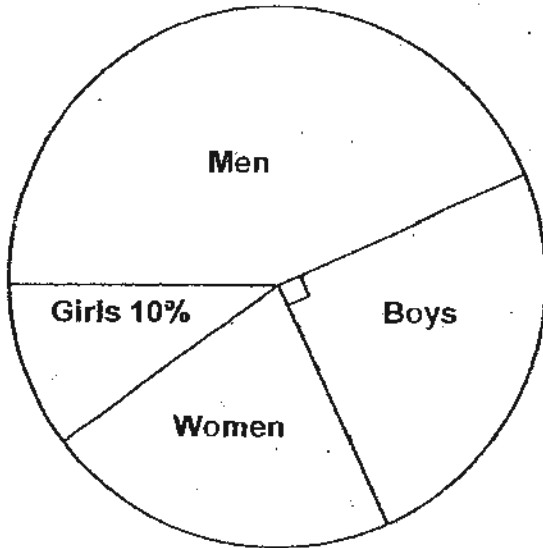
Ans : _____ cm

Subtotal	/ 4
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30. The pie chart below shows the number of audience at a concert.

If $\frac{1}{5}$ of them were women, how many percent more men than women are there at the concert?



Ans : _____ %

Subtotal	2
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END OF PAPER



NAN HUA PRIMARY SCHOOL
PRELIMINARY EXAMINATION – 2010
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
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Name : _____ ()

Class : 6 _____

Date : 24 Aug 2010

Parent's Signature : _____

Section A (10 marks)

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.

1. The average of two numbers is 35. If the difference between them is 14, find the larger number.

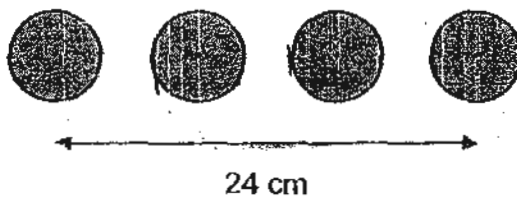
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Ans: _____ [2m]

2. A rectangle measures 10 cm by 5 cm. The length is increased by 50 % and the width is increased by 20 %. What is the new area of the rectangle?

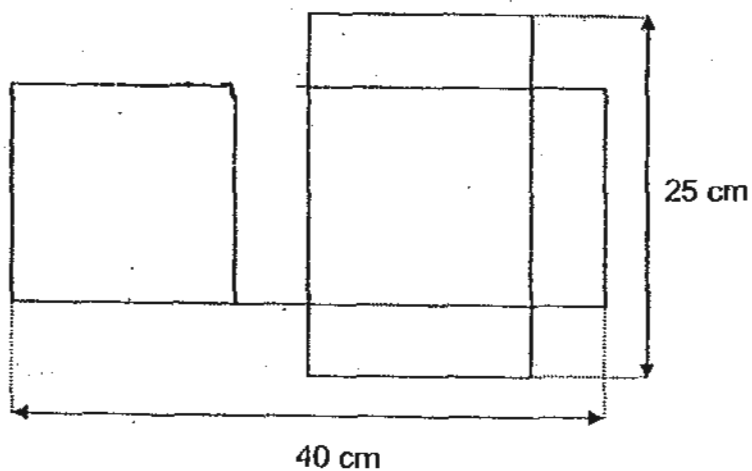
Ans : _____ cm² [2m]

3. Mary arranged some round buttons in a straight line at equal intervals. The distance between the centre of the 1st button and the centre of the 4th button was 24 cm. What was the distance between the centre of the 1st and the centre of the 40th button?



Ans : _____ cm [2m]

4. The diagram shows the net of a cuboid with a square base. Find its height.



Do not write in this space

Ans : _____ cm [2m]

5. Tap A can fill up an empty tank in 3 hours. Tap B can fill up the same empty tank in 4 hours. Tap C can fill up the same empty tank in 6 hours. How long will it take to fill up the empty tank if all the taps are turned on at the same time?

Ans : _____ h [2m]

Section B (50 marks)

For questions 6 to 18, show your working clearly in the space provided for each question and write your answers in the spaces provided. The number of marks available is shown in the brackets [] at the end of each question or part question. Remember to include the units wherever possible.

6. Study the number pattern below.

Pattern 1	Pattern 2	Pattern 3	Pattern 4	Pattern 5	...
$\frac{1}{2}$	$\frac{2}{6}$	$\frac{3}{12}$	$\frac{4}{20}$	$\frac{5}{\boxed{?}}$...

- (a) In Pattern 5, what is the missing number in the box?
 (b) Find the missing numerator and denominator in Pattern 20.

Do not write in this space

Ans:(a) _____ [1]

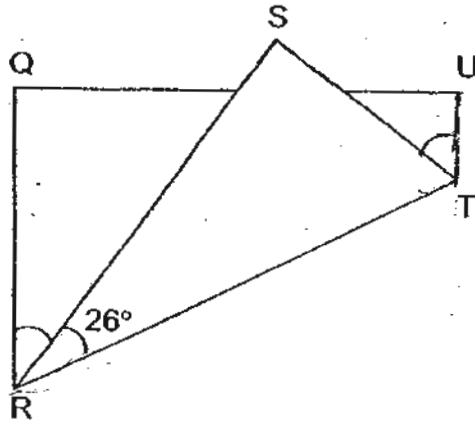
(b) numerator = _____ [1]

denominator = _____ [1]

7. A 40-gram serving of breakfast cereal contains $\frac{1}{4}$ sugar. Another 10 grams of sugar is added to it. What fraction of the resulting mixture is sugar?

Ans : _____ [3m]

8. In the figure below, not drawn to scale, a rectangular piece of paper was folded as shown.
 (a) Find $\angle QRS$.
 (b) Find $\angle STU$.



Do not write
in this space

Ans: (a) $\angle QRS =$ _____ [1m]

(b) $\angle STU =$ _____ [2m]

9. A shopkeeper sells a packet of 10 candies for \$ 4. He gives away 2 free candies for every 2 packets of candies purchased. Diana needs 131 candies for her birthday party. What is the **least** amount of money that she has to pay?

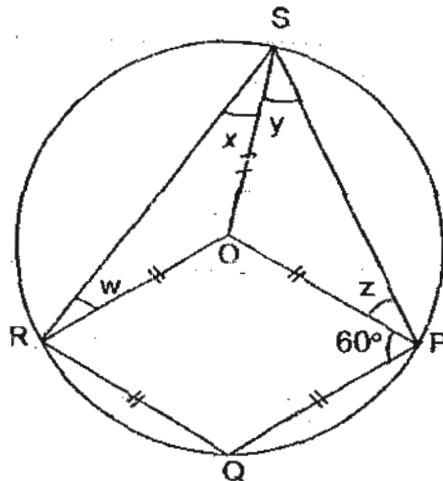
Ans: _____ [3m]

10. A container was 80 % filled with water. When 540 mℓ of water was poured out, it became $\frac{2}{3}$ full. Find the capacity of the container in litres.

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Ans: _____ [3m]

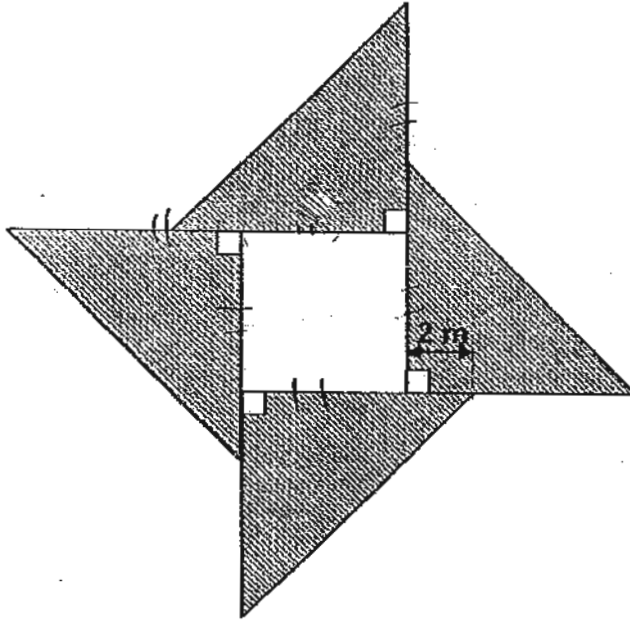
11. In the figure below, not drawn to scale, O is the centre of the circle and OPQR is a rhombus. Find the value of $\angle w + \angle x + \angle y + \angle z$.



Ans : _____ [3m]

12. The figure below, not drawn to scale, is formed by 4 identical right-angled isosceles triangles and a square in the centre. The shaded area of the figure is 200 m^2 . Find the perimeter of the square.

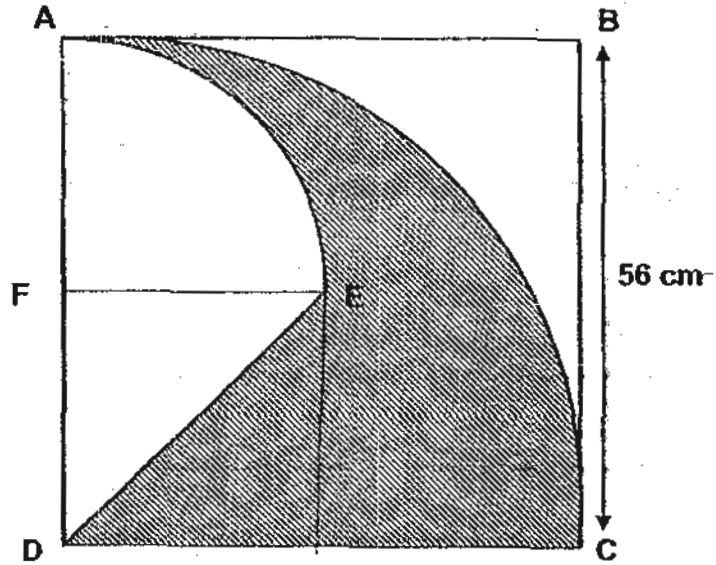
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Ans : _____ [3m]

13. The figure shows a square ABCD and 2 quadrants. Point E is the centre of the square. Find the area of the shaded part.

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



Do not write
in this space

Ans : _____ [Am]



14. Mr Yeo gave 25 % of his monthly salary to charity. When his salary was increased by \$ 300, he continued to give the same percentage of his increased salary to the charity.

Do not write
in this space

(a) How much more money did Mr Yeo give to charity after the salary increment?

(b) If the charity received \$575 from Mr Yeo after the increase in his salary, what was Mr Yeo's salary before the increment?

Ans : (a) _____ [1m]

(b) _____ [3m]

15. Anna, Belinda and Clare, bought a vase and shared the cost equally among themselves. Clare did not bring her money, so Anna and Belinda paid for the vase first. Anna paid 0.25 more than what Belinda had paid. The following day, Clare paid her share to both Anna and Belinda.

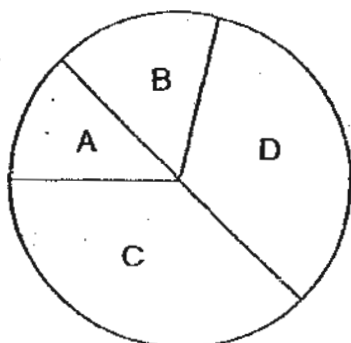
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- (a) Clare paid Belinda \$6.55. How much did Clare pay Anna?
- (b) Clare's brother bought a similar vase at the same shop during a sale and was given a discount of 20% of the price that Clare and her friends paid for. How much did Clare's brother pay for the vase?

Ans : (a) _____ [2m]

(b) _____ [3m]

16. The circle below is divided into 4 parts, A, B, C and D.
 Part A and part C form one semi-circle. Part B and part D form the other semi-circle.
 The area of part A to the area of part C is in the ratio of 1 : 3.
 The area of part B to the area of part D is in the ratio of 1 : 2.



- (a) What percentage of the whole circle is part D?
 (b) The area of part C is bigger than part B by 20 cm^2 .
 Find the area of the whole circle.

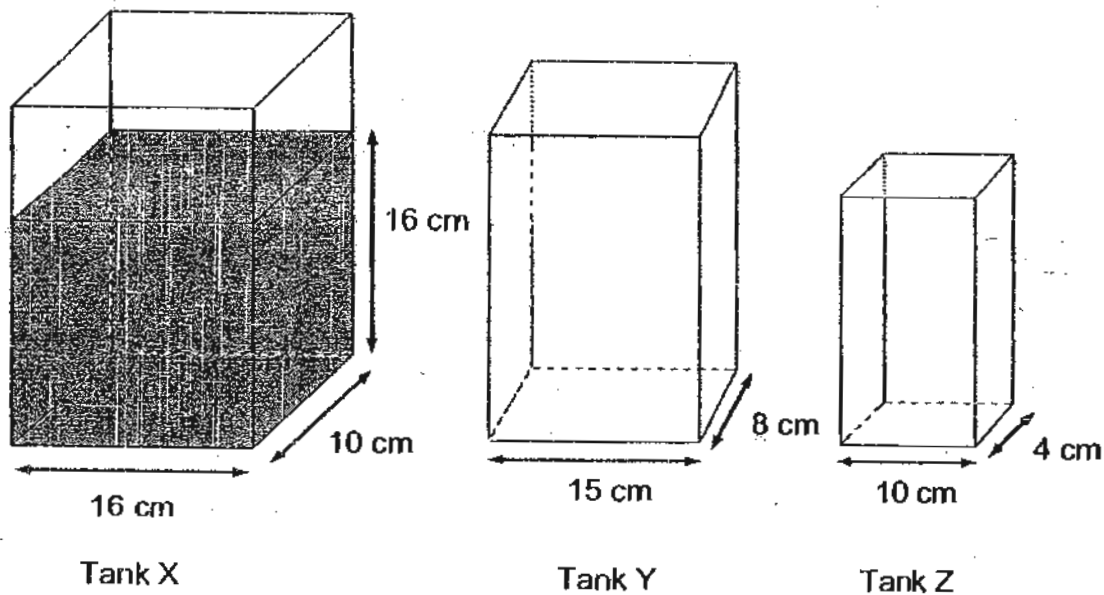
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Ans : (a) _____ [2m]
 (b) _____ [3m]



17. Tank X is filled with water to a height of 16 cm. The water in Tank X is poured into 2 rectangular tanks, Tank Y and Tank Z, such that the heights of water in the 3 tanks are equal. Find the volume of water poured out of Tank X.

Do not write
in this space



Ans : _____ [5 m]

18. At 08 00 a van left Town Y and travelled towards Town Z at an average speed of 70 km/h. At the same time, a lorry left Town Y and travelled in the opposite direction towards Town X. When the lorry reached Town X at 10 00, the van was 10 km away from Town Z. Town X and Town Z were 270 km apart. Find

Do not write
in this space

(a) the speed of the lorry.

(b) the time taken for the lorry to travel from Town X to Town Z.

Ans : (a) _____ [4 m]

(b) _____ [1 m]



END OF PAPER

ANSWER SHEET

EXAM PAPER 2010

SCHOOL : NAN HUA PRIMARY
SUBJECT : PRIMARY 6 MATHEMATICS

TERM : PERLIMINARY

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

16)48

17)12:5

18)25

19) $5\frac{1}{25}$

20) $\frac{5}{12}$

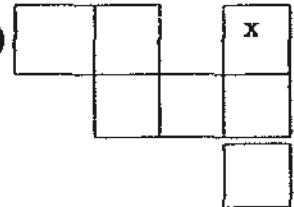
21)2h 35min

22)12min

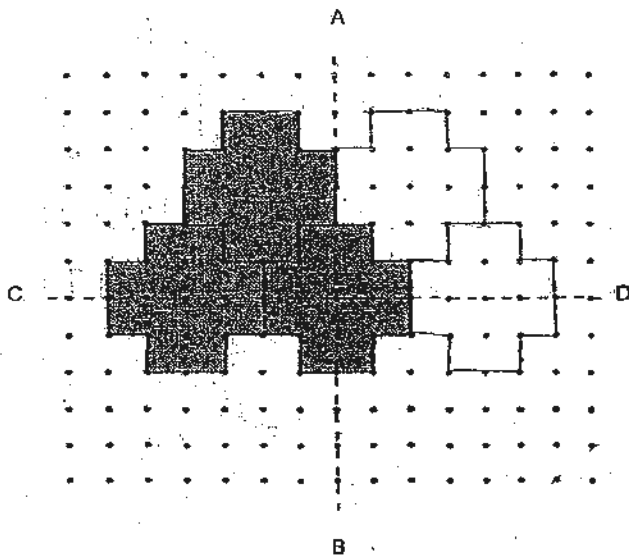
23)1:1

24)19cm³

25)



26)



27)120 coins

28)22.5cm²

29)35cm

30)125%

Paper 2

<p>1) $35 \times 2 = 70$ $70 - 14 = 56$ $56 \div 2 = 28$ $28 + 14 = 42$</p>	<p>2) $10 \times 150/100 = 15$ $5 \times 120/100 = 6$ $6 \times 15 = 90 \text{cm}^2$</p>
<p>3) $24 \div 3 = 8$ $8 + 304 = 312 \text{cm}$</p>	<p>4) $40 \div 2 = 20$ $20 - 20 = 5 \text{cm}$</p>
<p>5) $1/3 + 1/4 + 1/6 = 3/4$ $4 \div 3 = 1\frac{1}{3} \text{h}$</p>	<p>6) a) $5 \times 6 = 30$ It is 30 $20 \times 21 = 420$ b) The number is 20 and the denominator is 420.</p>
<p>7) $1/4 \times 40 = 10$ $10 + 40 = 50$ $10 + 10 = 20$ $20/50 = 2/5$ It is $2/5$ of the mixture.</p>	<p>8) a) $90^\circ - 26^\circ - 26^\circ = 38^\circ$ $\angle \text{QRS is } 38^\circ$ b) $180^\circ - 64^\circ - 64^\circ = 52^\circ$ $\angle \text{STU is } 52^\circ$</p>
<p>9) 1 packet \rightarrow 10 candies \rightarrow \$4 2 packet \rightarrow 22 candies \rightarrow \$8 $131 \div 22 = 5 \text{R } 21$ $5 \times 1 = 5$ $6 \times 8 = \\$48$ It is \$48</p>	<p>10) $4/5 - 2/3 = 2/15$ $540 \div 2 = 270$ $270 \times 15 = 4050$ $4050 \div 1000 = 4.05 \text{L}$ It is 4.05L</p>
<p>11) $180^\circ - 60^\circ = 120^\circ$ $360^\circ - 120^\circ = 240^\circ$ $360^\circ - 240^\circ = 120^\circ$ It is 120°</p>	<p>12) $200 \div 4 = 50$ $50 \times 2 = 100$ $2\sqrt{100} = 10$ $10 - 2 = 8$ $8 \times 4 = 32 \text{m}$ It is 32m</p>
<p>13) $56 \times 56 \times 1/4 \times 22/7 = 2464$ $56 \div 2 = 28$ $28 \times 28 \times 1/2 = 292$ $28 \times 28 \times 1/4 \times 22/7 = 616$ It is 1456cm^2</p>	<p>14) $300 \times 25/100 = 75$ $575 - 75 = 500$ $500 \times 4 = 2000$ a) It is \$75 more b) It is \$2000</p>

<p>15) $4 - 3 = 1$ $6.55 \times 2 = 13.10$ $6.55 \times 9 = 58.95$ $58.95 \times 80/100 = 47.16$ a) She paid Anna \$13.10 b) Her brother paid \$47.16</p>	<p>16) a) $8/24 \times 100 = 33\frac{1}{3}$ b) $9 - 4 = 5$ $20 \div 5 = 4$ $4 \times 12 = 48\text{cm}^2$</p>
<p>17) $16 \times 16 \times 10 = 2560$ <u>2560</u> $16 \times 10 + 15 \times 8 + 40 = 8$ $8 \times 15 \times 8 = 960$ $8 \times 40 = 320$ $8 \times 160 = 1280$ $320 + 960 = 1280\text{cm}^2$</p>	<p>18) $2 \times 70 = 140$ $140 + 10 = 150$ $270 - 150 = 120$ $120 \div 2 = 60$ $270 \div 60 = 4.5 = 4\frac{1}{2}$ a) It is 60km/h b) It will take $4\frac{1}{2}\text{h}$</p>