PRELIMINARY EXAMINATION

PRIMARY 6
MATHEMATICS PAPER 1
(BOOKLET A)

23 AUGUST 2016

Name: _____

Form Class / Register No. : 6R_____/_____

Banded Class / Register No. : 6M_____/_____

Total time for Booklets A and B: 50min

INSTRUCTIONS TO CANDIDATES

1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.
6. The use of calculator is **NOT ALLOWED**.

This booklet consists of 6 printed pages, excluding the cover page.

Paper 1 (Booklet A)

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.

You are <u>not</u> allowed to use a calculator. (20 marks)

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1 Round off 687 935 to the nearest ten thousands.

(1) 680 000

(2) 688 000

(3) 690 000

(4) 700 000

2 $5\frac{2}{3} = 4\frac{\square}{3}$

What is the missing number in the box above?

(1) 5

(2) 2

(3) 3

(4) 4

3 Which of the following decimal has the **greatest** value?

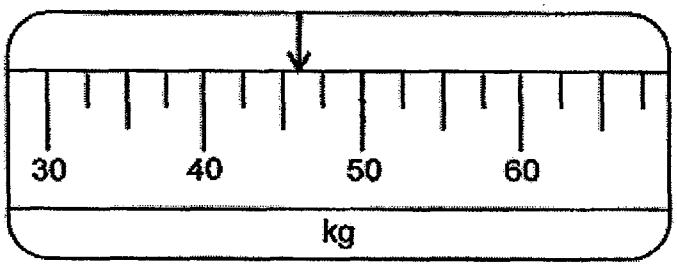
(1) 5.01

(2) 5.11

(3) 5.011

(4) 5.101

4 The figure below shows part of a weighing scale. Which of the following is closest to the reading indicated by the arrow?



(1) 43 kg

(2) 44 kg

(3) 46 kg

(4) 47 kg

5 Which of the following is the same as 6.05 km?

(1) 65 m

(2) 605 m

(3) 6050 m

(4) 60 500 m

6 The mass of a papaya is $\frac{4}{7}$ of the mass of a watermelon. What is the ratio of the mass of the watermelon to the total mass of the 2 fruits?

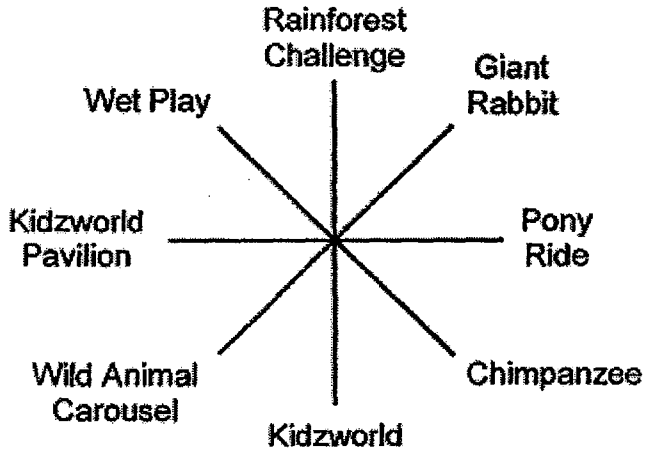
(1) 4 : 7

(2) 4 : 11

(3) 7 : 4

(4) 7 : 11

7 The figure below shows the positions of 8 different places in a zoo. Shanice was facing Wet Play at first. She then turned 225° anticlockwise. Where is Shanice facing now?



(1) Kidzworld

(2) Pony Ride

(3) Chimpanzee

(4) Wild Animal Carousel

8 Read the riddle below.

"I am a 4-sided figure.
The sum of angles in me adds up to 360°.
I have parallel lines but I may not have any equal angles."

What am I?

Which one of the following is the correct shape?

(1) Parallelogram

(2) Rectangle

(3) Rhombus

(4) Trapezium

9 Express 0.507 as a percentage.

(1) 5.07%

(2) 50.7%

(3) 57%

(4) 507%

10 Mr Tan travelled 50 km in 30 minutes. What was Mr Tan's average speed?

(1) $1\frac{2}{3}$ km/h

(2) 25 km/h

(3) 100 km/h

(4) 1500 km/h

11 Which one of the following numbers has the same number of factors as 30?

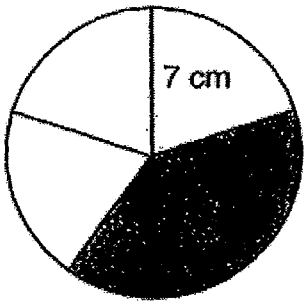
(1) 17

(2) 21

(3) 24

(4) 48

12 The circle below is divided into 5 equal parts. It has a radius of 7 cm. Find the area of the shaded part. (Take $\pi = \frac{22}{7}$)



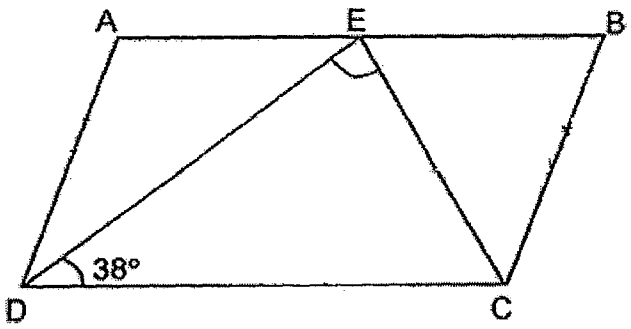
(1) $31\frac{3}{5}$ cm^2

(2) 44 cm^2

(3) $61\frac{3}{5}$ cm^2

(4) 154 cm^2

13 In the figure below, ABCD is a parallelogram. EBC is an equilateral triangle. Find ∠DEC.



(1) 60°

(2) 82°

(3) 104°

(4) 142°

14 Bailey had a total of 270 pens and rulers.

After selling $\frac{1}{3}$ of the pens and $\frac{2}{3}$ of the rulers, the number of rulers left was twice the number pens left.

How many pens did Bailey sell?

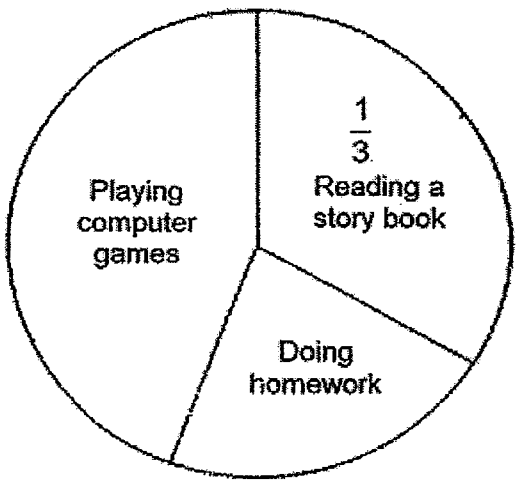
(1) 18

(2) 54

(3) 144

(4) 216

15 The pie chart below shows how Kumar spent 6 hours on Children's Day holiday. He spent twice as much time playing computer games as doing his homework. How much time did he spend playing computer games?



(1) 1 h 20 min

(2) 2 h

(3) 2 h 40 min

(4) 4 h

-- End of Booklet A --

PRELIMINARY EXAMINATION

PRIMARY 6
MATHEMATICS PAPER 1
(BOOKLET B)

23 AUGUST 2016

Parent's signature

Name: _____

Form Class / Register No. : 6R_____/_____

Banded Class / Register No. : 6M_____/_____

Total time for Booklets A and B: 50min

INSTRUCTIONS TO CANDIDATES

1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write all your answers in this booklet.
6. The use of calculator is **NOT ALLOWED**.

Marks (Booklet A) :	20
Marks (Booklet B) :	20
Total Marks (Booklets A and B) :	40

This booklet consists of 7 printed pages, excluding the cover page.

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 4.03 – 0.68.

Ans: _____

17 Find the value of $\frac{3}{4} \div 6$.

Ans: _____

18 Express 2.44 as a mixed number in its simplest form.

Ans: _____

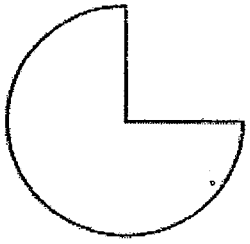
Do not write in this space.

19 The volume of a cube is 512 cm^3. Find the length of one edge of the cube.

Ans: _____ cm

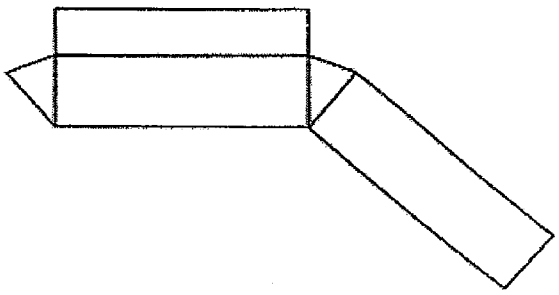
20 The figure below is a three-quarter circle with diameter 14 cm.

Find the perimeter of the figure. (Take $\pi = \frac{22}{7}$)



Ans: _____ cm

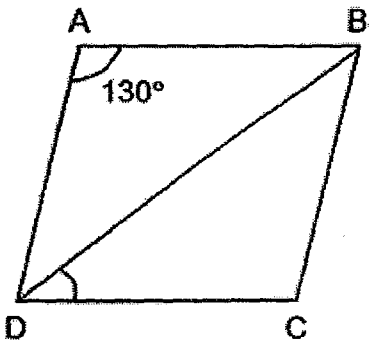
21 Name the solid that corresponds to the net below.



Ans: _____

Do not write in this space.

22 In the figure below, ABCD is a rhombus. Find ∠BDC.



Ans: _____ °

23 Express $\frac{9}{20}$ as a percentage.

Ans: _____ %

Do not write in this space.

24 The table below shows the results of the Boys 400-m Freestyle final in the recent Asian Youth Games.

Lane	1	2	3	4
Name	Ahmad	Boh Hua	Chin Chai	Da Li
Time taken	4 min 1 sec	3 min 58 sec	3 min 46 sec	4 min 7 sec

Who is the fastest swimmer?

Ans: _____ 1

25 Simplify $10n - 6 + 3n - 8n + 10$.

Ans: _____

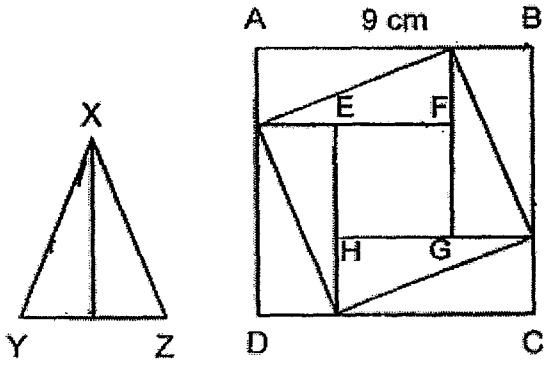
Questions 26 to 30 carry 2 marks each. Show your working clearly and write your answers the spaces provided. For questions which require units, give your answers in the units stated. (10 marks)

Do not write in this space.

26 Find the value of $30 - (7 + 11) \div 3 \times 4$.

Ans: _____

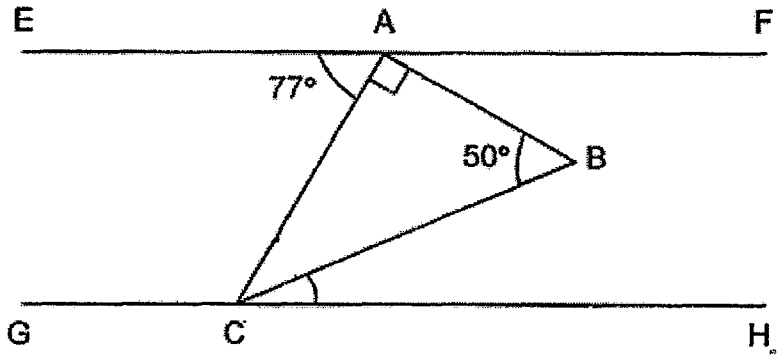
27 The 2 right-angled triangles that form XYZ are identical to the 8 triangles in ABCD. EFGH is a square of area 25 cm^2 and AB is 9 cm. Find the area of XYZ.



Ans: _____ cm^2

Do not write in this space.

28 In the figure below, ABC is a right-angled triangle. EF is parallel to GH. Find ∠BCH.



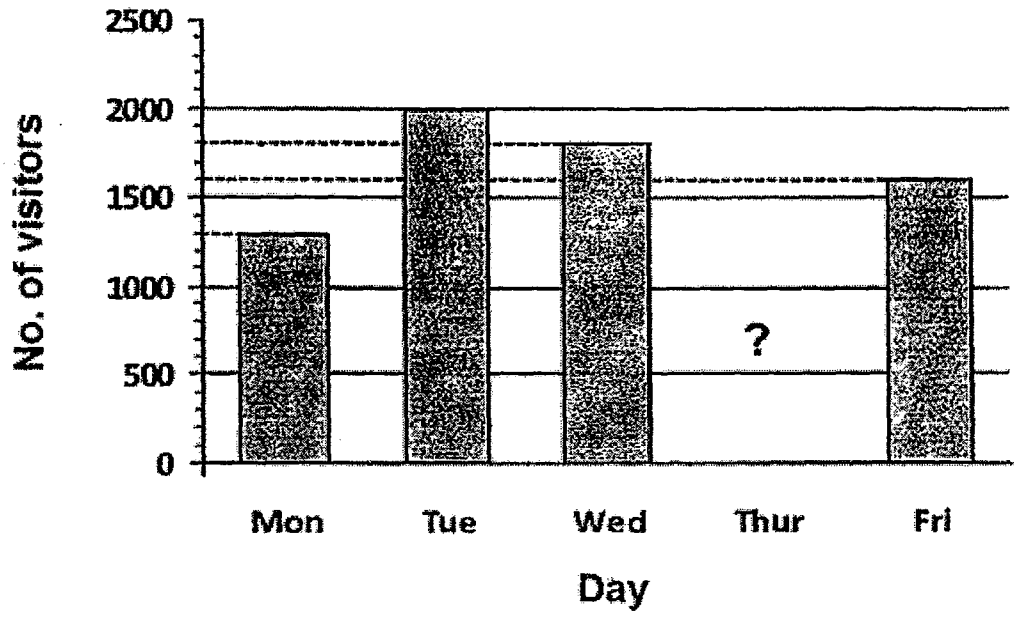
Ans: _____ °

29 Mickey and Minnie had some cookies in the ratio 5 : 2.
Mickey ate 38 cookies and Minnie made another 43 cookies.
Then Mickey and Minnie had the same number of cookies.
How many cookies did Mickey have at first?

Ans: _____

Do not write in this space.

30 The graph below shows the number of visitors at Kidszania from Monday to Friday. The bar that shows the number of visitors on Thursday has not been drawn. If the percentage of visitors decreased by 36% from Thursday to Friday, what is the number of visitors on Thursday?



Ans: _____

-- End Of Paper 1 --

PRELIMINARY EXAMINATION

PRIMARY 6
MATHEMATICS
PAPER 2

23 AUGUST 2016

Parent's signature

Name: _____

Form Class / Register No. : 6R_____/_____

Banded Class / Register No. : 6M_____/_____

Total time: 1h 40min

INSTRUCTIONS TO CANDIDATES

1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write all your answers in this booklet.
6. The use of an approved calculator is expected, where appropriate.

Paper 1 :	40
Paper 2 :	60
Total Marks :	100

This booklet consists of 14 printed pages, excluding the cover page.

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 answer in the units stated. (10 marks)

Do not write in this space.

1 Twice of a number is greater than $\frac{1}{3}$ of the number by 60.

What is the number?

Ans: _____

2 A square-based container has a capacity of 2.873ℓ. It has a base area of 169 cm^2. What is the height of the container?

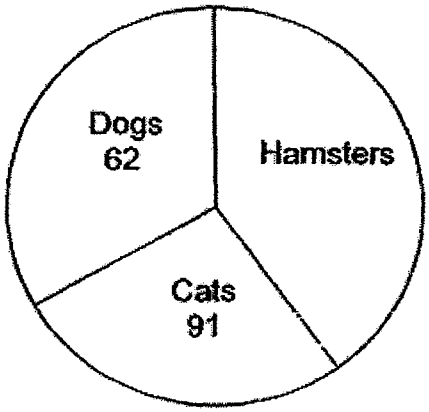
Ans: _____ cm

3 Li Hai's Mathematics score for the mid-year examination was 85. His Mathematics score for the year-end examination was 68. Find the percentage decrease in his Mathematics score.

Ans: _____%

Do not write in this space.

4 A survey was conducted to find out the types of pets owned by a group of children and the result is represented by the pie chart below.



$\frac{7}{24}$ of the number of children owned hamsters.
How many children took part in the survey?

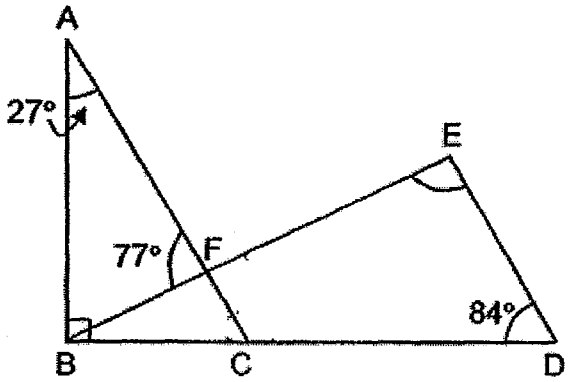
Ans:_____

5 Mrs Rosie was paid $\$k$ an hour for working on weekdays and Saturdays, and \$12 an hour on Sundays. How much would she be paid for working 6 hours each day for a week?

Ans: \$ _____

Do not write in this space.

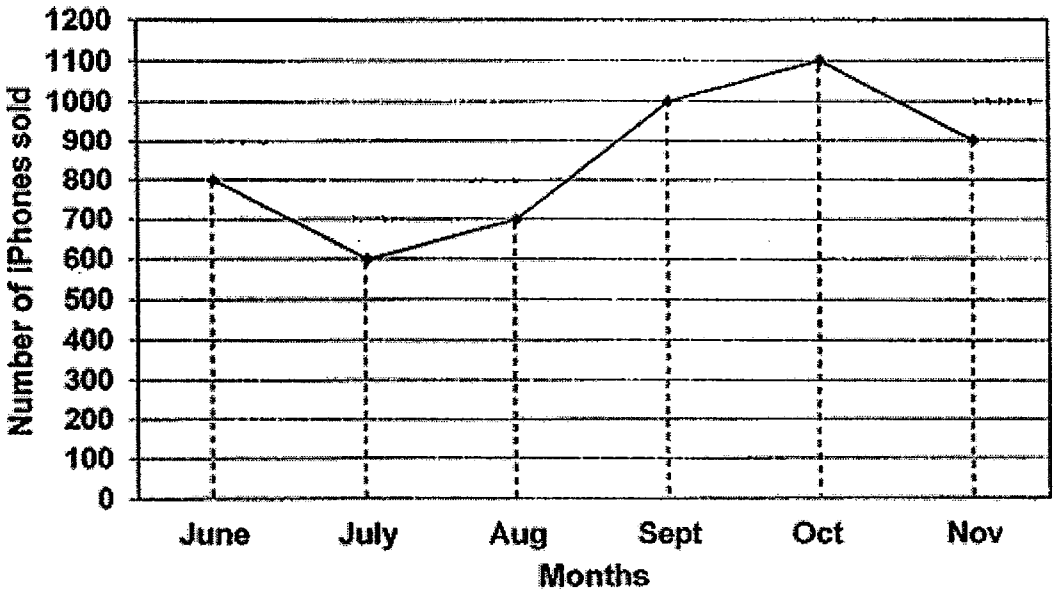
9 In the figure below, ABC is a right-angled triangle. BCD and BFE are straight lines. ∠BAF is 27°. ∠AFB is 77° and ∠EDB is 84°.
Find ∠BED.



Ans:_____ [3]

Do not write in this space.

10 The line graph below shows the number of iPhones sold from June to November.



(a) What was the average number of iPhones sold in the six months?

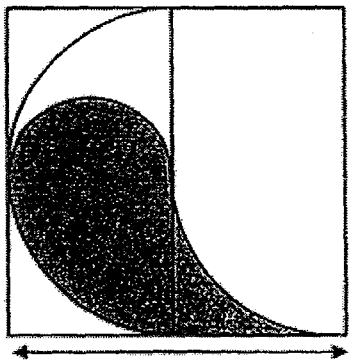
(b) The number of iPhones sold in August by 3 salesmen, Ben, Carl and Diego, was in the ratio 5 : 6 : 3. How many iPhones did Carl sell in August?

Ans: (a) _____ [1]

(b) _____ [2]

Do not write in this space.

7 The figure below is made up of a square, 1 large semicircle, 1 small semicircle and 2 quadrants. The square has a side 24 cm. Find the area of the shaded part. Give your answer correct to 2 decimal places.



Ans:_____ [3]

8 Doughnuts are sold in a box of 4 for $6.90 or one for $1.80. What is the maximum number of doughnuts that can be bought with $52.00?

Ans:_____ [3]

Questions **6** to **18** 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. **(50 marks)**

Do not write in this space.

6 Ali, Bala and Clive each gave the same amount of money to Don who had no money.

Ali gave Don $\frac{1}{2}$ of his money.

Bala gave Don $\frac{1}{5}$ of his money.

Clive gave Don $\frac{2}{7}$ of his money.

In the end, what fraction of the total sum of money the 3 boys had did Don receive? Express your answer in the simplest form.

Ans:_____ [3]

Do not write in this space.

11 At first, the ratio of the number of pencils Abby had to the number of pencils Jack had was 4 : 3. Each child then gave away 40 pencils. In the end, the number of pencils Abby had was 3 times the number of pencils Jack had.

(a) How many pencils did Abby have in the end?

(b) How many pencils did Abby and Jack have altogether at first?

Ans: (a) _____ [2]

(b) _____ [2]

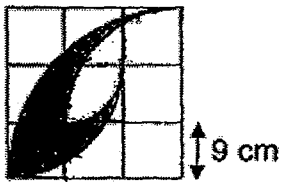
Do not write in this space.

12 Mary and Joseph went shopping together with a total sum of $99. Mary spent twice as much as Joseph. The amount of money Joseph had left was $12 more than what he had spent. He had twice as much money left as Mary. How much did Joseph have at first?

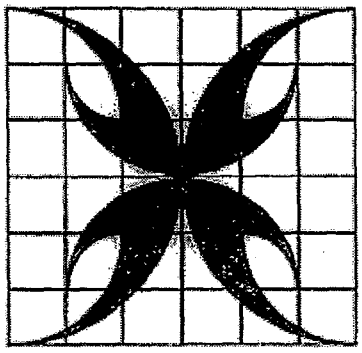
Ans:_____ [4]

Do not write in this space.

13 The figure below is made up of 4 quarter circles drawn on square grids.



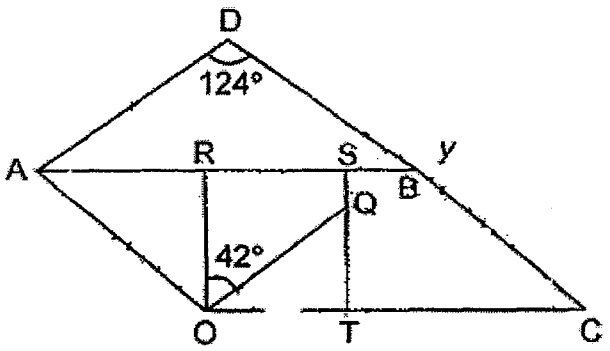
Find the area of the shaded part as shown below. (Take $\pi = 3.14$)



Ans:_____ [4]

Do not write in this space.

14 In the figure below, ABCO is a parallelogram, RSTO is a square and DAB is an isosceles triangle. ∠AOR is equal to ∠QOT. ∠ROQ is 42° and ∠ADB is 124°. Find ∠y.



Ans:_____ [4]

Do not write in this space.

15 John took 5 h to drive from Town A to Town B. At the same time, David started driving from Town A at a speed 18 km/h slower than that of John's. When John reached Town B, David still had $\frac{2}{7}$ of the distance to cover. Find the time taken by David to cover the remaining distance.

Ans:_____ [4]

Do not write in this space.

16 Bob the builder had twice as many screws as nails.

The total mass of the screws and nails was 1054 g.

The mass of the screws was 646 g more than the mass of the nails.

The mass of each screw was 13 g more than the mass of each nail.

(a) What was the mass of the nails in grams?

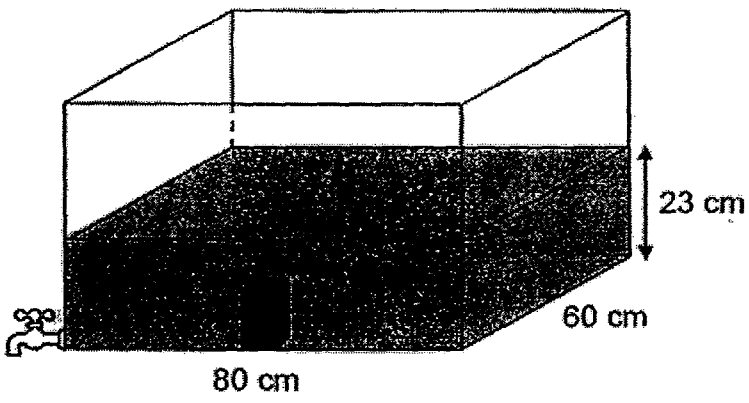
(b) How many nails were there?

Ans: (a) _____ [2]

(b) _____ [3]

Do not write in this space.

17 A solid with a square base of side 11 cm and volume of 1573 cm^3 was placed in a tank with its base touching the base of the tank as shown below.



The water level in the tank was 23 cm. The tap attached to the tank was turned on and water flowed out at a rate of 3ℓ/min.

(a) How long does it take for the water level to just reach the top of the solid?

(b) The tap was then turned off. What will the height of the water level be when the solid was then removed from the tank? (Give your answer correct to 2 decimal places.)

Ans: (a) _____ [3]

(b) _____ [2]

Do not write in this space.

18 Finn, Glen and Hugo had some marbles in the ratio 2 : 3 : 5. Hugo gave 40% of his marbles to Finn and Glenn. As a result, Finn had the same number of marbles as Glen and Hugo had 36 fewer marbles than Finn.

(a) What was the percentage increase of Finn's marbles after receiving marbles from Hugo?

(b) How many marbles did Hugo have at first?

Ans: (a) _____ [3]

(b) _____ [2]

-- End of Paper 2 --

2016 EXAM PAPER

ANSWER SHEET

SCHOOL : PEI HWA PREBYTERIAN PRIMARY SCHOOL
LEVEL : PRIMARY 6
SUBJECT : Maths
TERM : Preliminary Examination

CONTACT :

PAPER 1 BOOKLET A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	1	2	3	3	4	2	4	2	3

Q11	Q12	Q13	Q14	Q15
3	3	2	1	2

PAPER 1 BOOKLET B

Q16) $4.03 - 0.68 = 3.35$

Ans : 3.35

Q17) $\frac{3}{4} \div 6 = \frac{3}{4} \times \frac{1}{6} = \frac{1}{8}$

Ans : $\frac{1}{8}$

Q18) $2.44 = 2\frac{44}{100} = 2\frac{11}{25}$

Ans: $2\frac{11}{25}$

Q19) $\sqrt[3]{512} = 8$

Ans : 8cm

Q20) Length of the arc = $\frac{3}{4} \times 14 \times \frac{22}{7} = 33$
Length of 2 radii = 14
Perimeter of the figure = 33 + 14 = 47

Ans : 47cm

Q21) Prism

Ans: Prism

Q22) Rhombus is divided into 2 isosceles triangles

$\angle BDC = \frac{1}{2}(180^\circ - 130^\circ) = 25^\circ$

Ans: 25°

Q23) $\frac{9}{20} = \frac{45}{100} = 45\%$

Ans: 45%

Q24) Chin Chai

Ans: Chin Chai

Q25) $10n - 6 + 3n - 8n + 10$
$= 10n + 3n - 8n - 6 + 10$
$= 5n + 4$

Ans: $5n + 4$

Q26) $30 - (7 + 11) \div 3 \times 4$
$= 30 - 18 \div 3 \times 4$
$= 30 - 6 \times 4$
$= 30 - 24$
$= 6$

Ans: 6

Q27) Length of EF = $\sqrt{25} = 5$
Base of right-angled triangle = 2
Height of right-angled triangle = 7
Area of XYZ = $2 \times (\frac{1}{2} \times 2 \times 7) = 14$

Ans: $14cm^3$

Q28) $\angle ACB = 180^\circ - 90^\circ - 50^\circ = 40^\circ$
$\angle ACH = 77^\circ$
$\angle BCH = 77^\circ - 40^\circ = 37^\circ$

Ans: 37°

Q29) Mickey : Minnie
5U : 2U
-38 ↓ : ↓ +43
1p: 1p

$5U - 38 = 2U + 43$
$5U - 2U = 43 + 38$
$3U = 81$
$U = 27$

$5U = 27 \times 5$
$= 135$

Ans: 135 cookies

Q30) Number of visitors on Friday = 1500
64% → 1500
Number of visitors on Thursday: 100% → $\frac{1500}{64}$ x 100 = 2500

Ans: 2500

PAPER 2

Q1) $2 - \frac{1}{3} = \frac{5}{3}$

$\frac{5}{3}$ → 60

$\frac{1}{3}$ → 12

$\frac{3}{3}$ → 36

Ans: 36

Q2) 2.873 ℓ = 2873 cm^3
2873 ÷ 169 = 17

Ans: 17 cm^3

Q3) $\frac{85-68}{85}$ x 100% = 20%

Ans: 20%

Q4) Children who own dogs and cats → 24 – 7 = 17
17U → 62 + 91
17U → 153
1U → 9
24U → 216

Ans : 216 children

Q5) Weekdays + Saturday → \$K x 6 x 6 = \$36K
Sunday → \$12 x 6 = \$72
Total pay → \$(36K + 72)

Ans: \$(36K + 72)

Q6) A gave D $\frac{1}{2}$ → $\frac{1}{2} = \frac{2}{4}$

B gave D $\frac{1}{5}$ → $\frac{1}{5} = \frac{2}{10}$

C gave D $\frac{2}{7}$ → $\frac{2}{7}$

Total sum of money = 4 + 10 + 7 = 21
Fraction of money Don received over total sum of money
$= \frac{6}{21} = \frac{2}{7}$

Ans: $\frac{2}{7}$

Q7) 1 small square → 12 x 12 = 144 cm²

1 small semi-circle = $\frac{1}{2}$ x π x 6 x 6 = 18π cm²

Shaded area → 144 + 18 π ≈ 200.55 cm²

Ans: 200.55 cm²

Q8) 52 ÷ 6.90 = 7 R 3.7

3.7 ÷ 1.8 ≈ 2

Doughnuts bought → (7 x 4) + 2 = 30

Ans: 30

Q9) $\angle ABF = 180^\circ - 77^\circ - 27^\circ = 76^\circ$

$\angle EBD = 90^\circ - 76^\circ = 14^\circ$

$\angle BED = 180^\circ - 14^\circ - 84^\circ = 82^\circ$

Ans: 82°

Q10) a) (800 + 600 + 700 + 1000 + 1100 + 900) ÷ 6 = 850

b) B : C : D : Total
5 : 6: 4 : 14
14U → 700
1U → 50
6U → 50 x 6 = 300

Ans: (a) 850
(b) 300

Q11) a) Before
A: J : Diff
4 : 3 :1
8 : 6 : 2

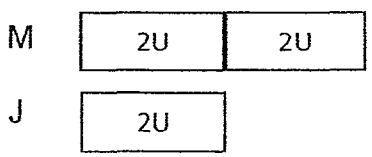
After
A : J : Diff
3 : 1 : 2

8U – 3U = 40
5U = 40
1U = 8
3U = 24

b) 8U + 6U = 14U
14U → 14 x 8 = 112

Ans: (a) 24
(b) 112

Q12) Spent



Left

M | U+6 |

J | 2U | 12 |

Total → Spent + Left

$6U + (U + 6) + (2U + 12) = 99$

$9U + 18 = 99$

$9U = 81$

$U = 9$

J → $2U + 2U + 12$

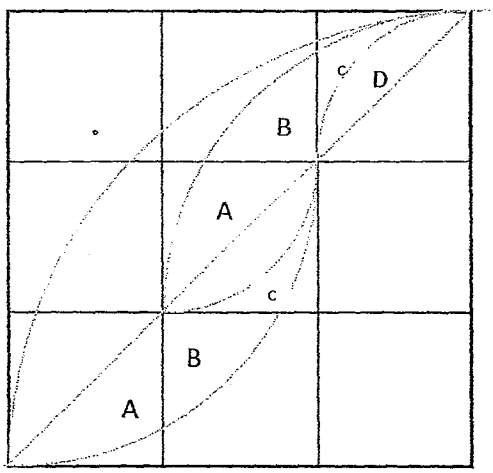
$= 4U + 12$

$= 4 \times 9 + 12$

$= 48$

Ans: $48

Q13)



Move the bottom A, B and C to the upper half to form a half leaf. In the end, only D is not shaded in the half leave.

Shaded area in this quarter → half leaf – section D

Area of half leaf → quadrant of a circle – triangle

$= (\frac{1}{4} \times \pi \times 27 \times 27) - (\frac{1}{2} \times 27 \times 27)$

$= 572.265 - 364.5$

$= 207.765$

Section D (half leaf) $= (\frac{1}{4} \times \pi \times 9 \times 9) - (\frac{1}{2} \times 9 \times 9)$

$= 63.585 - 40.5$

$= 23.085$

Shared area in one quarter = 207.765 – 23.085 = 184.68

Total shared area = 4 x 184.68 = 738.72

Ans:738.72 cm^2

Q14) $\angle DBA = (180^\circ - 124^\circ) \div 2 = 28^\circ$

$\angle QOT = \angle AOR = 90^\circ - 42^\circ = 48^\circ$

$\angle RAO = 180^\circ - 90^\circ - 48^\circ = 42^\circ$

$\angle BCT = \angle RAO = 42^\circ$

$\angle ABC = 180^\circ - 42^\circ = 138^\circ$

$\angle Y = 360^\circ - 28^\circ - 138^\circ = 194^\circ$

Ans: 194°

Q15)

	John	**David**
Distance	5(S + 18) = 5S + 90	5S
Speed	S + 18	S
Time	5	5

Distance travelled by David: $\frac{5}{7}$ U → 5S

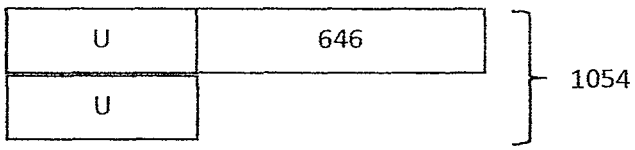
$\frac{1}{7}$ U → 1S

Remaining distance: $\frac{2}{7}$ U → 2S

Time Taken to travel 2S → 2S ÷ S = 2

Ans: 2 h

Q16) a)



2U + 646 = 1054

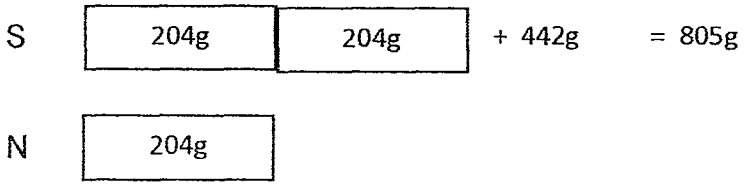
2U = 408

1U = 204

b)

Mass of screws = 1054 – 204 = 850

As number of screws is twice as many as nails:



442 ÷ 13 = 34

Number of nails = 34 ÷ 2 = 17

Ans: a) 204g

b) 17

Q17) a)

Height of solid = 1573 ÷ 11 ÷ 11 = 13
Difference between the height of water to the height of solid = 23 – 13 = 10
Volume of water above the height of the solid = 80 x 60 x 10 = 48000
Time taken to drain the water = 48000 ÷ 3000 = 16

b)

Volume of water with a height of 13cm = 80 x 60 x 13 = 624000
Volume of water left after removing the solid = 62400 – 1573 = 60827
Height of water = 60827 ÷ 80 ÷ 60 ≈ 12.67cm

Ans: a) 16 mins
b) 12.67cm

Q18) a)

F : G : H
x 20 (2 : 3 : 5
40 :60 : 100)
+40 -40

70 : 70 : 60

Diff between F & H → 70U – 60U = 36
10U = 36

In the beginning, F → 40U = 36 x 4 = 144
In the end, F → 70U = 36 x 7 = 252
% increase → $\frac{252-144}{144}$ x 100% = 75%

b)

Hugo has 10U → 10 x 36 = 360

Ans: a) 75%
b) 360