Rosyth School
Preliminary Examination 2016
Primary 6 Mathematics

Name: _____ Register No. _____

Class: Pr 6 - _____

Date: 23rd August 2016 Parent's Signature: _____

Total Time for Booklets A and B : 50 minutes

PAPER 1
(Booklet A)

Instructions to Pupils:

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. Shade your answers in the Optical Answer Sheet (OAS) provided.
4. You are **not** allowed to use a calculator.
5. Answer all questions.

Section	Maximum Mark	Marks Obtained
Paper 1 (Booklet A)	20	

*** This booklet consists of 7 printed pages (including this cover page)**

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.

All diagrams in this paper are not drawn to scale unless stated otherwise.

(20 marks)

1. The value of the digit 5 in 257 041 is _____.

   (1) 500
   (2) 5 000
   (3) 50 000
   (4) 500 000

2. $\frac{6}{18} = \frac{15}{\boxed{?}}$

   What is the missing number in the box?

   (1) 27
   (2) 36
   (3) 45
   (4) 54

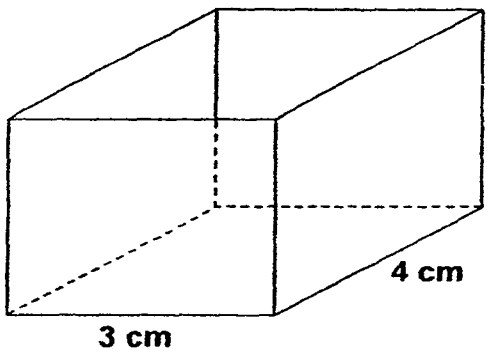
3. A number becomes 80 000 when rounded off to the nearest thousand. Which one of the following could the number be?

   (1) 79 187
   (2) 79 783
   (3) 80 978
   (4) 81 879

4. What is the value of $60 \div 240$?

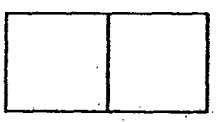
(1) 0.025
(2) 0.25
(3) 40
(4) 4

5. Jacob wanted to fill up the box below with 1-cm cubes. He found out that he could only put 72 such cubes into the box.
What is the minimum height of the container?



(1) 6 cm
(2) 9 cm
(3) 3 cm
(4) 12 cm

6. The figure below is made up of two identical squares. The perimeter of the figure is 60 cm. Find its area.



(1) 100 cm^2
(2) 112.5 cm^2
(3) 200 cm^2
(4) 450 cm^2

7. The table below shows the time taken by 4 swimmers to swim 200m before and after a month's training. Which swimmer made the most improvement?

Names of Swimmers	Time taken before training (in seconds)	Time taken after training (in seconds)
Howe Kit	165	143
Nelson	195	148
Fadley	166	145
Kaspir	149	147

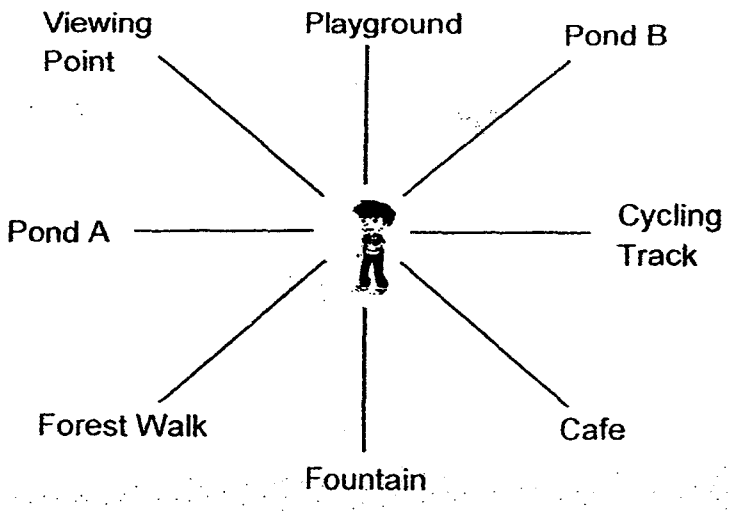
(1) Howe Kit

(2) Nelson

(3) Fadley

(4) Kaspir

8. Willy was facing the fountain when he first reached the park. He made a $\frac{3}{4}$-turn anticlockwise. After making the turn, which direction was Willy facing?



(1) Viewing Point

(2) Pond A

(3) Café

(4) Cycling Track

9. A train took 10 h to travel from Town X to Town Y. It travelled at an average speed of 3y km/h. How many metres did the train travel?

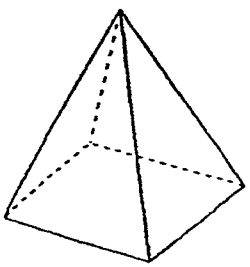
(1) 0.3y m

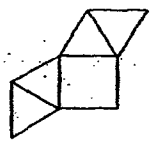
(2) 30y m

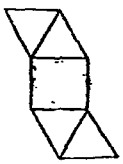
(3) 3 000y m

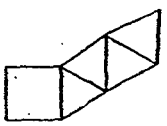
(4) 30 000y m

10. The figure shows a solid. Which one of the following is **not** a net of the solid?



(1) 

(2) 

(3) 

(4) 

11. Jake had a total of 60 chocolates and sweets for sale. After selling $\frac{1}{3}$ of the chocolates and $\frac{2}{3}$ of the sweets, he had twice as many sweets left as chocolates. How many sweets did Jake sell?

(1) 16
(2) 24
(3) 32
(4) 4

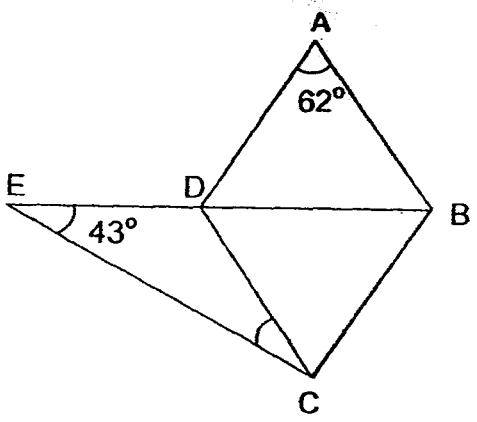
12. A rectangular tank with base measuring 40 cm by 50 cm has a capacity of 100 litres. It is half-filled with water. Find the height of the water in the tank.

(1) 2.5 cm
(2) 25 cm
(3) 50 cm
(4) 500 cm

13. The total amount of money Muthu saved was $330. He had only $2 and $5 notes in his savings. The number of $2 notes was thrice the number of $5 notes. Find the value of the $2 notes.

(1) $30
(2) $90
(3) $150
(4) $180

14. In the figure, ABCD is a rhombus and BCE is a triangle. $\angle BAD = 62°$ and $\angle CED = 43°$. Find $\angle DCE$.



(1) 16°

(2) 19°

(3) 28°

(4) 75°

15. Mr Lee took 6 hours to drive from Town X to Town Y while Mdm Ong took 4 hours to drive from Town Y to Town X. Both of them started driving at 9 a.m., what time did the two of them pass each other?

(1) 11.00 a.m.

(2) 11.24 a.m.

(3) 12.36 p.m.

(4) 2.00 p.m.

(Go on to Booklet B)

Rosyth School
Preliminary Examination 2016
Primary 6 Mathematics

Name: _____ Register No. _____

Class: Pr 6 - _____

Date: 23rd August 2016 Parent's Signature: _____

Total Time for Booklets A and B : 50 minutes

PAPER 1
(Booklet B)

Instructions to Pupils:

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. You are **not** allowed to use a calculator.
4. Answer all questions.

Section	Maximum Mark	Marks Obtained
Paper 1 (Booklet B)	20	

*** This booklet consists of 7 printed pages (including this 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.

All diagrams in this paper are not drawn to scale unless stated otherwise.

(10 marks)

Do not write in this space

16. Find the value of $50.5 - 7.98$.

Ans: _____

17. Find the value of $3 + \frac{4}{5} - \frac{1}{2}$. Give your answer as a mixed number in the simplest form.

Ans: _____

18. Find the value of $55 - (15 + 8) - 6 \times 3$.

Ans: _____

19. The volume of a cuboid with a base area of 60 cm^2 is 1380 cm^3. What is the height of the cuboid?

Ans: _____ cm

20. A rectangle has an area of 7.5 m^2. The length is 3 m. What is the breadth of the rectangle?

Do not write in this space

Ans: _____ m

21. Mrs Trina bought 6 apples for $12 and 5 pears for $7.
How much more did an apple cost than a pear?

Ans: $_____

22. Primary 4 and Primary 5 students participated in a school fund raising event. There are an equal number of Primary 4 boys and Primary 5 boys. $\frac{5}{12}$ of the Primary 4 students and $\frac{1}{6}$ of the Primary 5 students are boys. There are 84 students altogether. How many male students are there altogether?

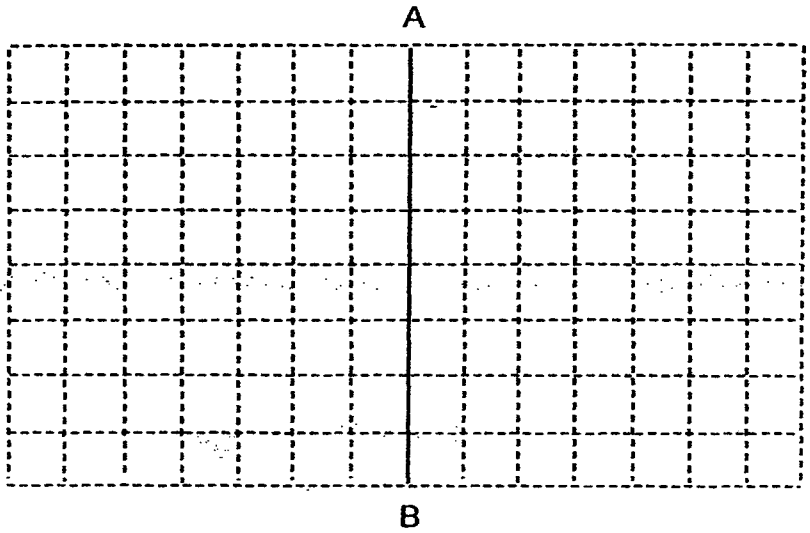
Ans: _____

23. At the supermarket, all items have to be charged a 7% GST.
The price of a pack of diapers without GST is $20. If Mr Lee wants to buy a pack of diapers, how much does he need to pay?

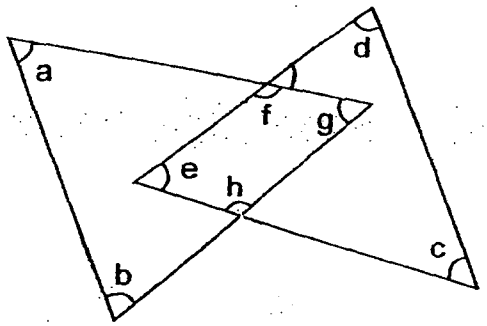
Do not write in this space

Ans: $ _____

24. Draw **three** straight lines to form a symmetric figure with $\overline{AB}$ as the line of symmetry.



25. In the figure below, $\angle f = 126°$ and $\angle h = 104°$.
Find the sum of $\angle a$, $\angle b$, $\angle c$ and $\angle d$.



Ans: _____ °

Questions 26 to 30 carry 2 marks each. Show your workings 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.

All diagrams in this paper are not drawn to scale unless stated otherwise.

(10 marks)

Do not write in this space

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26. The table below shows the stamps Ahmad and Sam had.

	Singapore	Malaysia	Total
Ahmad	17	19	
Sam	13		24

a) Complete the table. [1]

b) What fraction of the total number of stamps were Singapore stamps? Give your answer in the simplest form.

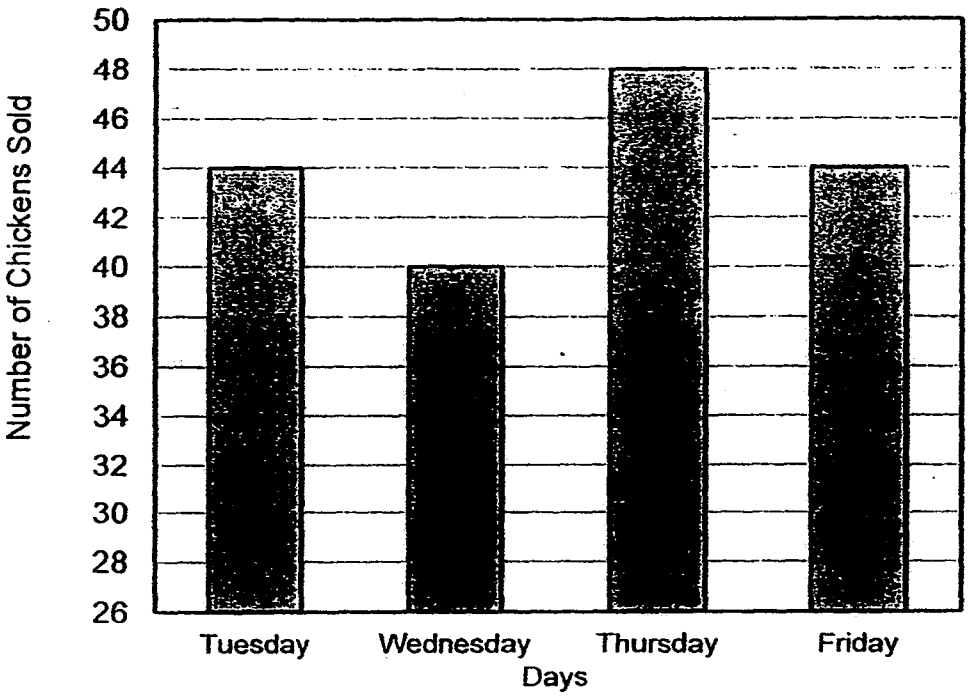
b) Ans: _____ [1]

27. Find the volume of a cube if the total surface area of a cube is 216 cm^2.

Ans: _____ cm^3

28. The bar graph below shows the number of chickens sold at a market over 4 days.

Do not write in this space



How many more chickens would need to be sold on Wednesday for the average number of chickens sold to be 45?

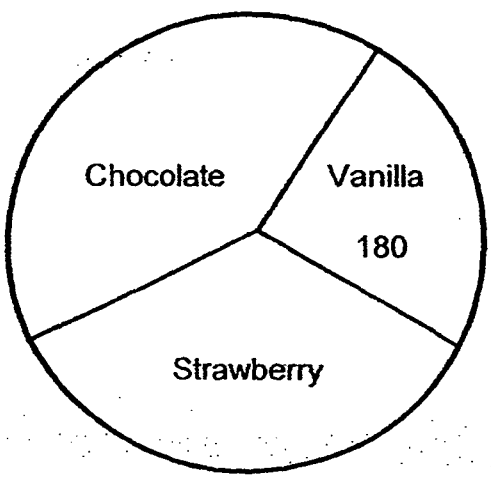
Ans: _____

29. Nancy cut squares from a rectangular cardboard measuring y metres by 2 metres. Each square had an area of 400 cm^2. What was the maximum number of squares she had cut?

Do not write in this space

Ans: _____

30. The pie chart represents the different kinds of ice-cream flavours sold by Mdm Chua. $\frac{3}{7}$ of the ice-cream sold were strawberry ice-cream. She sold 40 more chocolate ice-cream than strawberry ice-cream. How many strawberry ice-cream did she sell?



Ans: _____

Rosyth School
Preliminary Examination 2016
Primary 6 Mathematics

Name: _____ Register No. _____

Class: Pr 6 -_____

Date: 23rd August 2016 Parent's Signature: _____

Time: 1 hour 40 minutes

PAPER 2

Instructions to Pupils:

1. Do not open this booklet until you are told to do so.
2. Follow all instructions carefully.
3. **Show your workings clearly** as marks are awarded for correct working.
4. Write your answers in this booklet.
5. You are allowed to use a calculator.
6. Answer all questions.

Questions	Maximum Mark	Marks Obtained
Q 1 to 5	10	
Q 6 to 18	50	

Section	Maximum Mark	Marks Obtained
Paper 1	40	
Paper 2	60	
Total	100	

*** This booklet consists of 15 printed pages (including this cover page)**

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)

All diagrams in this paper are not drawn to scale unless stated otherwise.

Do not write in this space

1. During a school event, 16 prefects stood in a straight row at equal distances from each other. The distance between the fourth and eleventh pupil was 16.73 m. What was the distance between the first and last pupil?

Ans: _____ m

2. Roy had some pens. 20% of them are red and the rest are black. He sold half of his red pens and 20% of his black pens. What percentage of his pens was sold?

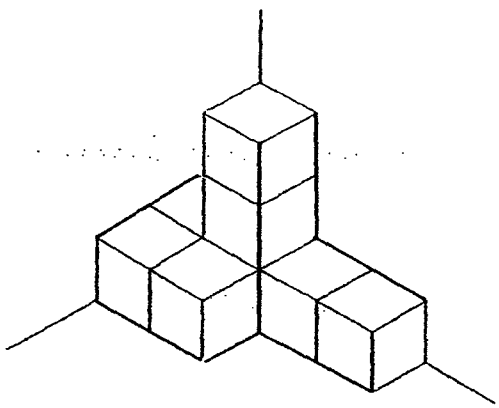
Ans: _____ %

3. The average number of durians in 5 baskets was 53. When another basket of durians was added, the average number of durians became 49. How many durians were there in the last basket?

Do not write in this space

Ans: _____

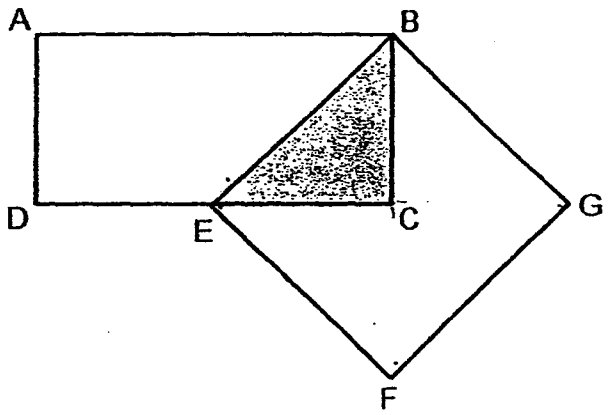
4. The figure below shows 8 identical cubes which are glued together to form a solid.



The whole solid, including the base, is then painted green. How many faces are not painted green?

Ans: _____

5. The figure below is formed by overlapping a square BGFE and a rectangle ABCD. Given that C is the centre of the square and E is the mid-point of DC, what fraction of the figure is unshaded? Give your answer in the simplest form.



Do not write in this space

Ans: _____

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 brackets [ ] at the end of each question or part-question. For questions which require units, give your answers in the units stated.

All diagrams in this paper are not drawn to scale unless stated otherwise.

(50 marks)

Do not write in this space

6. Mabel left her house for work at 8 a.m. After driving for some time, she passed her father who was driving at an average speed of 68 km/h in the opposite direction. After driving for another 45 minutes, Mabel reached her work place while her father was 3 km away from their house. Given that Mabel reached her work place at 9.15 a.m., what was her average speed?

Ans: _____ [3]

Do not write in this space

7. Mr Shah spent $\frac{1}{4}$ of his money on 7 pens and 9 highlighters. Each pen cost 3 times as much as a highlighter. He bought some more pens with $\frac{2}{3}$ of his remaining money. How many pens did Mr Shah buy altogether?

Ans: _____ [3]

8. A tank which is $\frac{5}{7}$ filled with water has a total mass of 231 kg. The same tank has a total mass of 183 kg when it is $\frac{1}{3}$ filled with water. Find the mass of the empty tank.

Ans: _____ [3]

9. The table below shows the number of pupils from 5 classes attending a holiday camp. The total number of students from the 5 classes was less than 100. If they are grouped into teams of 5 pupils each, 1 pupil is left out. If they are grouped into teams of 7 pupils each, 5 pupils are left out. How many pupils are there in class 4C?

Do not write in this space

Class	Number of pupils
4A	32
4B	28
4C	?
4D	11
4E	6

Ans: _____ [3]

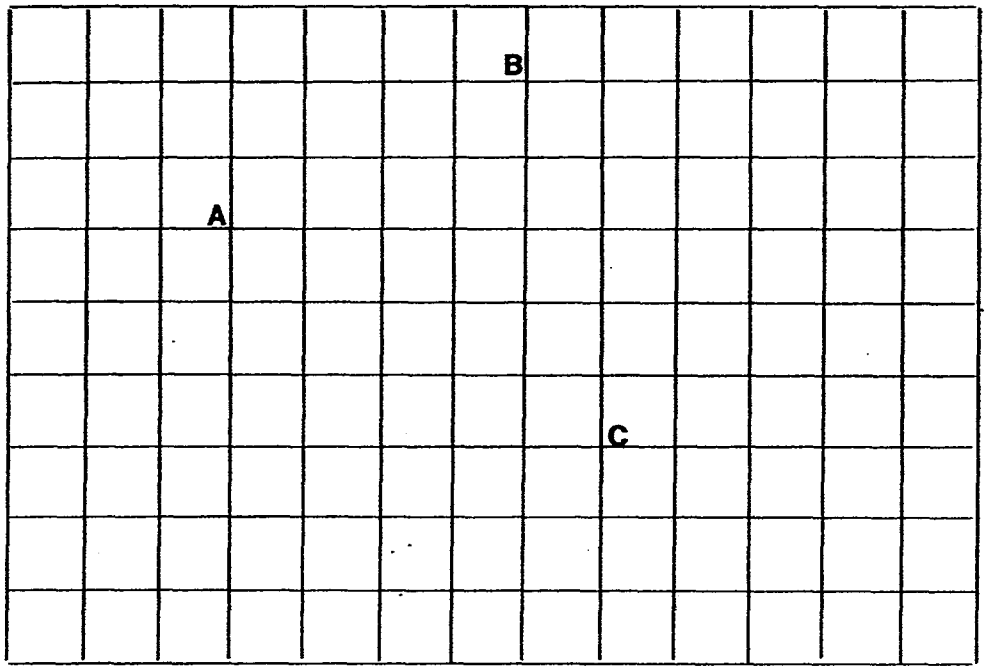
10. Mrs Siva baked a total of 315 butter and chocolate cookies in the ratio of 7 : 8 respectively. After she sold an equal number of each type of cookie, the ratio of the number of butter cookies left to the number of chocolate cookies left became 2 : 5. How many cookies did she sell altogether?

Ans: _____ [3]

11. In the square grid below, AB and BC are straight lines.

a) Measure and write down the size of ∠ABC.

b) AB and BC form two sides of a parallelogram ABCD. AB is parallel to CD. Complete the drawing of parallelogram ABCD.



[2]

Ans: (a) _____ [1]

Do not write in this space

12. Charles and Keith went shopping with $174.50 and $124.50 respectively. Each of them paid the same amount of money for a bag and a T-shirt. As a result, Charles had 3 times as much money left as Keith. Given that the bag cost 4 times as much as the T-shirt, find the cost of the bag.

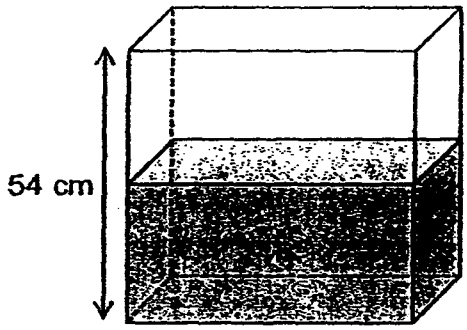
Do not write in this space

Ans: _____ [4]

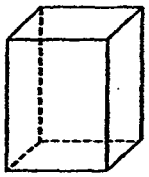
13. When 41 472 cm^3 of water was poured into an empty rectangular tank of height 54 cm, $\frac{4}{9}$ of the rectangular tank was filled.

(a) Find the base area of the rectangular tank.

(b) When some water from this rectangular tank was transferred into another empty rectangular container which had a base area of 270 cm^2, the water level in the rectangular tank became 21.5 cm, what was the water level in the rectangular container?



Rectangular tank



Rectangular container

Do not write in this space

Ans: (a) _____ [1]

Ans: (b) _____ [3]

14. Jimmy set a target score for his Math test. After the Math teacher returned his test paper to him, he realised that if he increased his target score by 10%, he would need 1 more mark to reach his actual test score. If he increased his target score by 15%, this target score would exceed his actual test score by 3 marks. Find his actual test score.

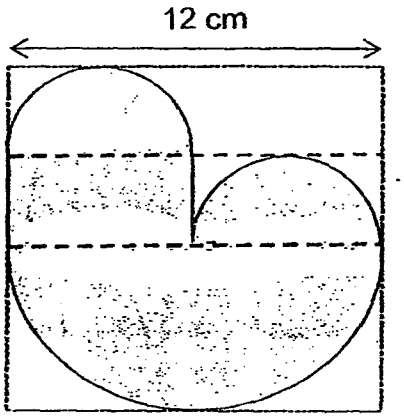
Do not write in this space

Ans: _____ [4]

15. **The figure below is drawn on a square piece of paper as shown below. The length is 12 cm. Its outline consists of a rectangle, a large semicircle and 2 identical smaller semicircles.**

a) What is the perimeter of the figure?
b) What is its area?

Take $\pi = 3.14$



Do not write in this space

Ans: (a) _____ [2]

Ans: (b) _____ [3]

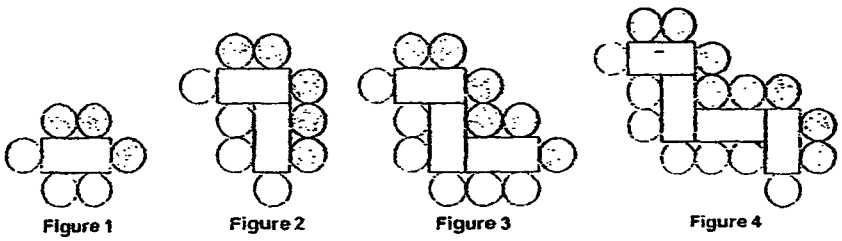
16. At a market, apples were sold at 5 for $3.30 and mangoes were sold at 4 for $6.80. Akiel bought an equal number of apples and mangoes and he paid $62.40 more for the mangoes than for the apples. How much did he pay for all the fruits he bought?

Do not write in this space

Ans: _____ [5]

17. The pattern shown below is made up of rectangles, grey circles and white circles.

Do not write in this space



The table below shows the number of rectangles, grey circles and white circles for each figure.

Figure Number	Number of Rectangles	Number of Grey Circles	Number of White Circles
1	1	3	3
2	2	5	4
3	3	6	6
4	4	8	7
5	5	9	9
...	...	...	...
10	10	17	16
...	...	...	...
20	20		31

a) Complete the table by indicating the number of grey circles needed for **Figure 20**. [1]

b) Find the number of white circles in **Figure 37**.

c) Find the number of rectangles when there are 150 grey circles.

Ans: (b) _____ [2]

Ans: (c) _____ [2]

18. **Julie's weekly allowance is \$11.80 more than Steven's. Steven spends \$12.50 more than Julie every week. Julie spends $\frac{5}{11}$ of her allowance every week. Steven saves $\frac{1}{2}$ as much as Julie every week. How much did Steven spend after 7 weeks?**

Do not write in this space

Ans: _____ [5]

YEAR : 2016
LEVEL : PRIMARY 6
SCHOOL : ROSYTH
SUBJECT : MATHEMATICS
TERM : PRELIMINARY EXAMINATION

Paper 1

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

Q16 42.52

Q17 $3 + \frac{4}{5} - \frac{1}{2} = 3 + \frac{8}{10} - \frac{5}{10} = 2\frac{10}{10} - \frac{8}{10} - \frac{5}{10} = 2\frac{18}{10} - \frac{5}{10} = 2\frac{13}{10} = \mathbf{3\frac{3}{10}}$

Q18 $55 - 23 - 6 \times 3 \rightarrow 55 - 23 - 18 \rightarrow 32 - 18 = \underline{14}$

Q19 $60 \times H = 1380 \rightarrow H = 1380 \div 60 = \underline{23}$

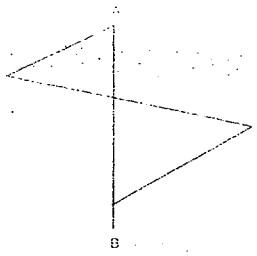
Q20 $3 \times B = 7.5 \rightarrow B = \underline{2.5\ m}$

Q21 $6A = \$12 \rightarrow 1A = \$2$
$5P = \$7 \rightarrow 1P = \$1.40$
$\$2 - \$1.40 = \underline{\$0.60}$

Q22 $\frac{5}{12} P4 = \frac{1}{6} P5 \rightarrow \frac{5}{12} P4 = \frac{5}{30} P5$
$12u + 30u = 42u$, $42u \rightarrow 84$, $1u \rightarrow 2$, $5u + 5u = 10u$, $10u \rightarrow 2 \times 10 = \underline{20}$

Q23 $100\% \rightarrow \$20$ (OP) , $1\% \rightarrow \$0.20$, $7\% \rightarrow \$1.40$ (D) $\Rightarrow$
$\$20 + \$1.40 = \underline{\$21.40}$ (OP + D)

Q24



Q25 $360° - 126° - 104° = 130° \rightarrow 180° + 180° = 360° \Rightarrow 360° - 130° = \underline{230°}$

Q26a 17 + 19 = 36 , 24 – 13 = 11

	Singapore	Malaysia	Total
Ahmad	17	19	**36**
Sam	13	**11**	24

Q26b 17 + 13 = 30 , 36 + 24 = 60 → $\frac{30}{60} = \frac{1}{2}$

Q27 216 $cm^2 \div 6 = 36\ cm^2$
$\sqrt{36} = 6$ (1 side)
6 x 6 x 6 = 216 cm^3

Q28 45 x 4 = 180 → 180 – 49 – 48 – 44 = 44 ⇒ 44 – 40 = 4

Q29 $\sqrt{400} = 20$
200 ÷ 20 = 10 (1 side)
(100y) ÷ 20 = 5y (1 side)
10 x (5y) = (50y)

Q30 $\frac{7}{7} - \frac{3}{7} - \frac{3}{7} = \frac{1}{7}$
$\frac{1}{7}$ → 40 + 180 = 220
$\frac{3}{7}$ → 220 x 3 = 660

Paper 2

Q1 11 – 4 = 7 (G) , 7G → 16.73m , 1G → 16.73 m ÷ 7 = 2.39m
16 – 1 = 15 (G) , 15G → 2.39m x 15 = 35.85m

Q2 Total: 20% (R) & 80% (B)
$\frac{1}{2}$ x 20% = 10% (S) $\frac{1}{5}$ x 80% = 16% (S)
$\frac{1}{2}$ x 20% = 10% (L) $\frac{4}{5}$ x 80% = 64% (S)
10% + 16% = 26% sold

Q3 53 x 5 = 265 , 49 x 6 = 294 ⇒ 294 – 265 = 29

Q4 2 + 1 + 2 + 2 + 1 + 2 + 2 + 4 = 16 not painted

Q5 Total → 7u , Unshaded → 6u , thus $\frac{6}{7}$ unshaded

Q6 Father: 1h → 68km
60min → 68km
15min → 68km ÷ 4 = 17km
45min → 17km x 3 = 51km
Mabel: 30min → 3km + 51km = 54km
1h → 54km x 2 = <u>108km/h</u>

Q7 1P → 3u , 1H → 1u
3u x 7 = 21u (7P)
1u x 9 = 9u (9H)
21u + 9u = 30u (T)
60u ÷ 3u = 20
20 + 7 = <u>27</u>

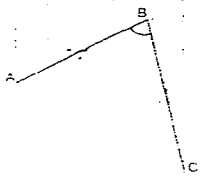
Q8 $T + \frac{5}{7} W \rightarrow 231kg$
$T + \frac{1}{3} W \rightarrow 183kg$
$\frac{5}{7} W - \frac{1}{3} W \rightarrow 231kg - 183kg$
$\frac{8}{21} W \rightarrow 48kg$
$\frac{7}{21} W \rightarrow (48kg \div 8) \times 7 = 42kg$
183kg – 42kg = <u>141kg</u>

Q9 4A + 4B + 4D + 4E → 32 + 28 + 11 + 6 = 77
Total no. of pupils = 96
96 – 77 = <u>19</u> pupils in class 4C

Q10 21u + 24u = 45u (total)
45u → 315
1u → 315 ÷ 45 = 7
(Butter) 21u – 2u = 19u
(Chocolate) 24u – 5u = 19u
19u + 19u = 38u (total sold)
38u ⇒ 7 x 38 = <u>266</u> cookies

Q11a 74 °

Q11b



Q12 C → 3u , K → 1u
3u – 1u = 2u (diff)
2u → \$174.50 - \$124.50 = \$50
1u → \$50 ÷ 2 = \$25
\$124.50 - \$25 = \$99.50
4u + 1u = 5u (total)
5u → \$99.50
1u → \$99.50 ÷ 5 = \$19.90
4u → \$19.90 x 4 = <u>\$79.60</u>

Q13a $\frac{4}{9}$ T → 41472cm^3
$\frac{9}{9}$ T → (41472cm^3) ÷ 4 x 9 = 93312cm^3
BA x 54cm = 93312cm^3 ÷ 54cm = <u>1728cm^2</u>

Q13b 21.5cm x 1728cm^2 = 37152cm^3 (RWT)
41472cm^3 - 37152cm^3 = 4320cm^3 (RWC)
4320cm^3 ÷ 270cm^2 = <u>16cm</u>

Q14 Assume his target score as 100u.
$\frac{10}{100}$ x 100u = 10u (increase)
100u + 10u = 110u
110u + 1 = (110u + 1) (actual score)
$\frac{15}{100}$ x 100u = 15u (increase)
100u + 15u = 115u
115u – 3 = (115u – 3) (actual score)
110u + 1 = 115u – 3
5u = 4
110u = 4 x 22 = 88 ⇒ 88 + 1 = <u>89</u> actual test score

Q15a $3.14 \times 6 = 18.84$, $3 \times 2 = 6$, $\frac{1}{2} \times 3.14 \times 12 = 18.84 \Rightarrow$
$18.84 + 6 + 18.84 = \underline{43.68\text{cm}}$

Q15b $3.14 \times 3 \times 3 = 28.26$, $3 \times 6 = 18$, $\frac{1}{2} \times 3.14 \times 6 \times 6 = 56.52 \Rightarrow$
$28.26 + 18 + 56.52 = \underline{102.78\text{cm}^2}$

Q16 Apples: $5 \rightarrow \$3.30$ Mangoes: $4 \rightarrow \$6.80$
$20 \rightarrow \$3.30 \times 4 = \$13.20$ $20 \rightarrow \$6.80 \times 5 = \$34$
1 set $\rightarrow$ 20A + 20B
$\$34 - \$13.20 = \$20.80$ (diff 1 set)
$\$62.40 \div \$20.80 = 3$ (no. of sets)
$\$13.20 + \$34 = \$47.20$ (total 1 set)
$3 \times \$47.20 = \underline{\$141.60}$

Q17a $(20 + 1) \times 3 = 21 \times 3 = 63$
$1u + 1 + 1u \rightarrow 63$
$2u + 1 \rightarrow 63$
$2u \rightarrow 63 - 1 = 62$
$1u \rightarrow 62 \div 2 = 31$
$31 + 1 = \underline{32}$

Q17b $(37 + 1) \times 3 = 38 \times 3 = 114$
$1u + 1u \rightarrow 114$
$2u \rightarrow 114$
$1u \rightarrow 114 \div 2 = \underline{57}$

Q17c $150 \times 2 = 300$
$(n + 1) \times 3 = 300$
$(n + 1) = 300 \div 3 = 100$
$n = 100 - 1 = \underline{99}$

Q18 Julie $\rightarrow$ 11u , Steven $\rightarrow$ 11u - \$11.80
Julie $\rightarrow$ 5u , Steven $\rightarrow$ 5u + \$12.50 (spend)
Julie $\rightarrow$ 6u [2p] , Steven $\rightarrow$ (11u - \$11.80) - (5u + \$12.50) $\rightarrow$
6u - \$24.30 [1p]
$1p \rightarrow 6u - 6u + \$24.30 = \$24.30$
$6u - \$24.30 = \$24.30$
$6u = \$24.30 + 24.30 = \$48.60$
$1u = \$48.60 \div 6 = \$8.10$
$5u = \$8.10 \times 5 = \$40.50$
$\$40.50 + \$12.50 = \$53 \Rightarrow \$53 \times 7 = \underline{\$371}$