RIVER VALLEY PRIMARY SCHOOL

PRELIMINARY EXAMINATION

2018

MATHEMATICS

PRIMARY SIX

Date : 21 August 2018

Duration : 60 min (Total time for Booklets A and B)

PAPER 1

(BOOKLET A)

INSTRUCTIONSTO CANDIDATES

1. Write your Name, Register No. and Class in the space 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. You are **not** allowed to use a calculator.

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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) and shade your answer on the Optical Answer Sheet. (20 marks)

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1. Which of the following is **not** a common factor of 18 and 30?

(1) 6

(2) 2

(3) 3

(4) 5

2. 6 ones, 5 tenths and 9 thousandths is _____.

(1) 0.659

(2) 6.059

(3) 6.509

(4) 6.59

3. Arrange the following numbers from the smallest to the largest.

8.001 , 8.1 , 8.01 , 81.01

(1) 81.01 , 8.1 , 8.01 , 8.001

(2) 8.01 , 8.1 , 8.001 , 81.01

(3) 8.001 , 8.01 , 8.1 , 81.01

(4) 8.001 , 8.1 , 8.01 , 81.01

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4. Which of the following fractions is the greatest?

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

(2) $\frac{5}{9}$

(3) $\frac{5}{11}$

(4) $\frac{6}{13}$

5. The table below shows the charges for parking at a shopping centre.

PARKING CHARGES	
For the first hour	$3.00
For every subsequent $\frac{1}{2}$ hour or part thereof	$1.20

Rex parked his car in the car park from 10.30 a.m. to 12.40 p.m. on the same day. How much did he pay altogether for the parking fee?

(1) $5.40

(2) $4.20

(3) $6.60

(4) $7.80

6. Simplify $10c + 8 - 5c + 2c - 2$.

(1) $7c + 10$

(2) $7c + 6$

(3) $3c + 10$

(4) $3c + 6$

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7. Mrs Lim exchanged a $10 note for 20 coins. All the coins had the same value. What was the value of each coin?

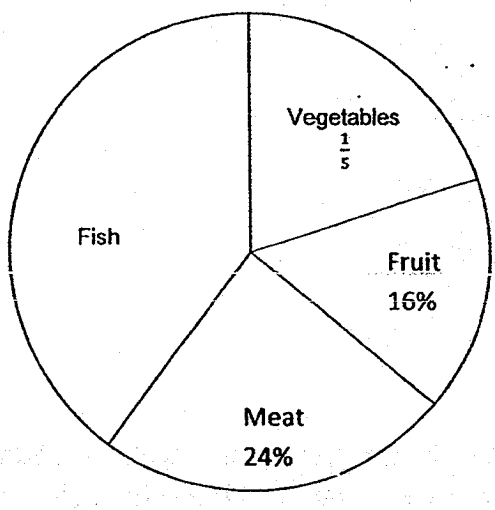
(1) 5 cents

(2) 10 cents

(3) 20 cents

(4) 50 cents

8. The pie chart below shows how Mrs Gomez spent her money at the supermarket last month. What was the ratio of the amount of money Mrs Gomez spent on meat to the amount of money she spent on fish?



(1) 5 : 3

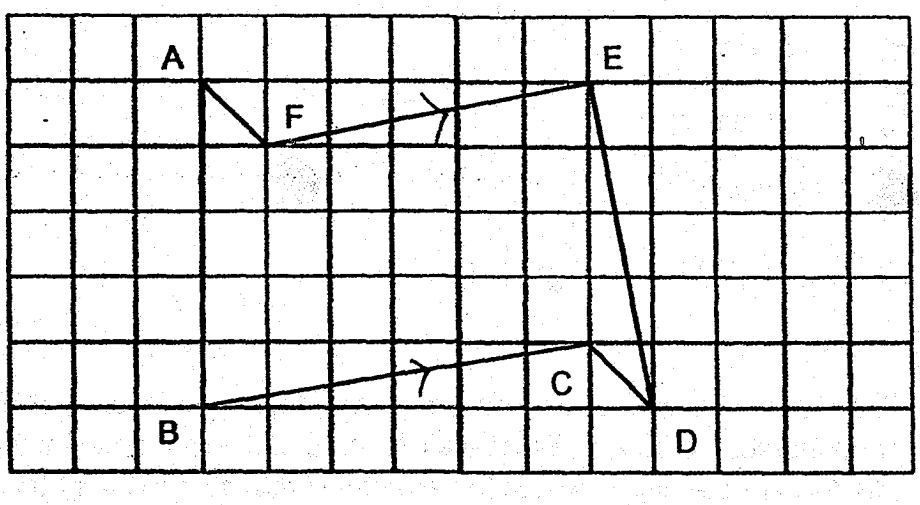
(2) 3 : 5

(3) 2 : 3

(4) 2 : 1

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9. Which two lines in the figure below are parallel to each other?



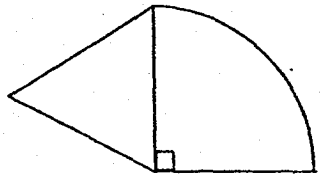
(1) FE and BC

(2) AB and ED

(3) AF and ED

(4) AF and CD

10. The figure below is made up of an equilateral triangle and a quadrant. The radius of the quadrant is 10 cm. Find the perimeter of the figure. Leave your answer in terms of π.



(1) (2.5π + 30) cm

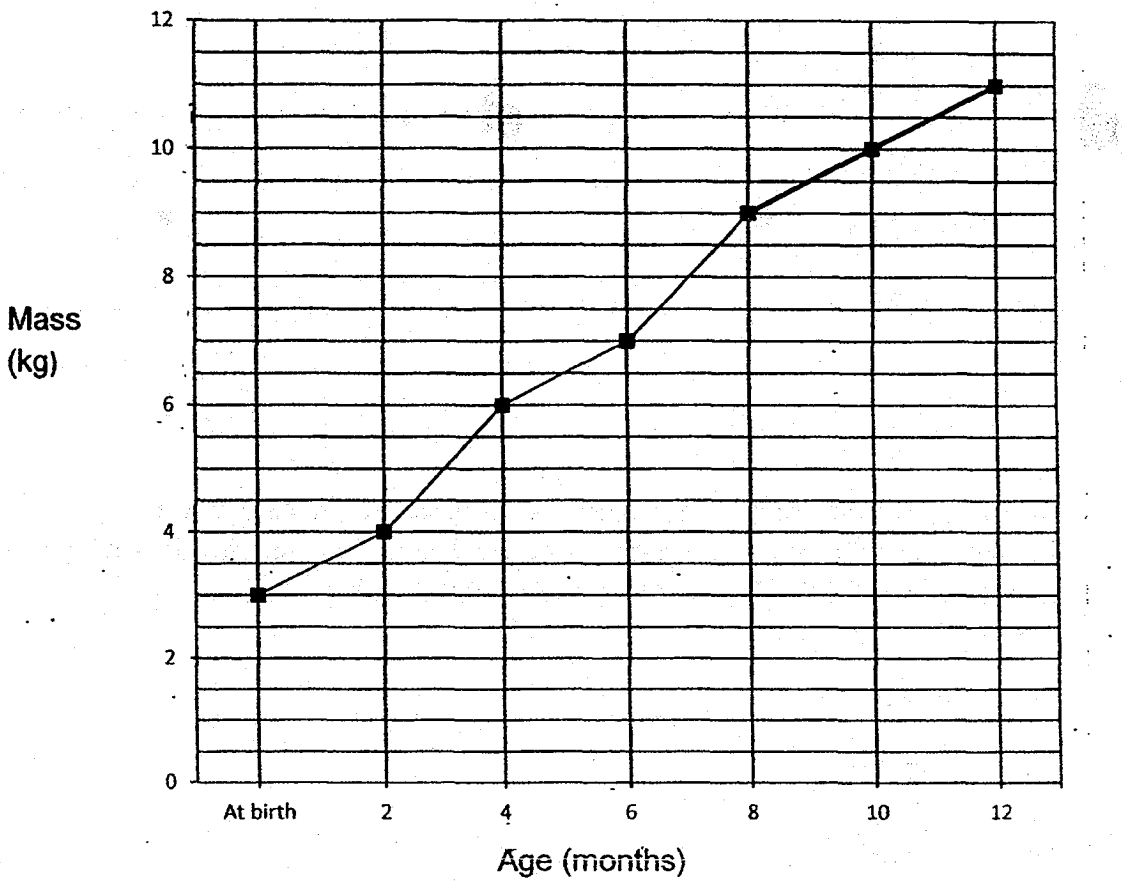
(2) (5π + 30) cm

(3) (20π + 30) cm

(4) (25π + 30) cm

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11. The line graph below shows Peter's mass from birth to his first birthday.



At what age was Peter's mass three times his mass at birth?

(1) 10 months

(2) 8 months

(3) 6 months

(4) 4 months

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12. The average mass of Alice, Bella and Carol is 36 kg. Alice is 11 kg heavier than Bella and 7 kg heavier than Carol. What is the mass of Carol?

(1) 31 kg

(2) 35 kg

(3) 37 kg

(4) 42 kg

13. In April, Samy spent $60 of his monthly allowance and saved the rest. In May, he increased his spending by 30% and as a result, his savings decreased by 20%. How much was his monthly allowance?

(1) $90

(2) $150

(3) $168

(4) $210

14. A bus can carry either 40 adults or 85 children. If there are already 24 adults and 13 children in the bus, how many more children can board the bus?

(1) 21

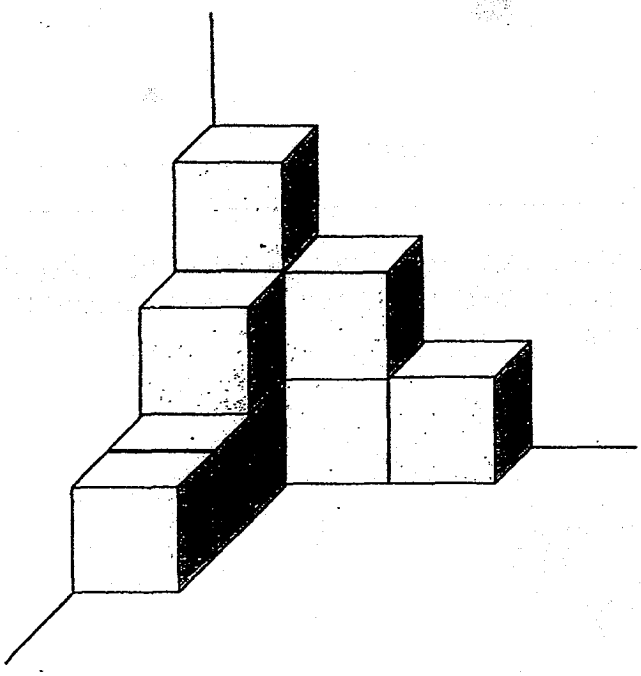
(2) 34

(3) 48

(4) 72

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15. The solid below is made up of identical cubes that are glued together. What is the **least** number of such cubes that must be added to make the solid into a bigger cube?



(1) 10

(2) 17

(3) 54

(4) 57

- End of Booklet A -

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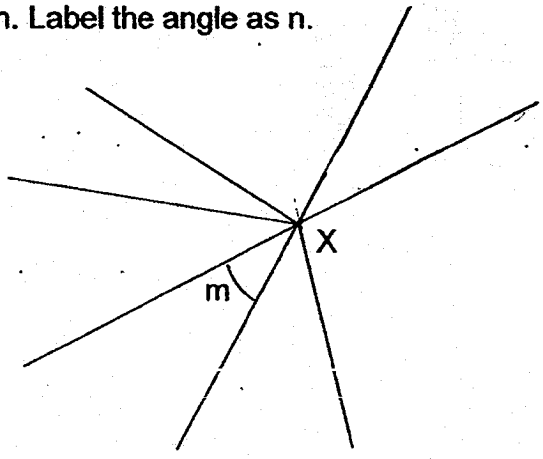
Questions 16 to 20 carry 1 mark each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (5 marks)

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16. Find the value of $\frac{6}{7} \div 42$.

Ans : _____

17. The figure below shows angles at point X. Without using a protractor, draw another angle at X which is the same size as ∠m. Label the angle as n.



18. The opening hours of CSC Library are shown below. How long is the library open each day? Give your answer in hours and minutes.

CSC Library

Opens Daily

10.15 a.m. to 9.30 p.m.

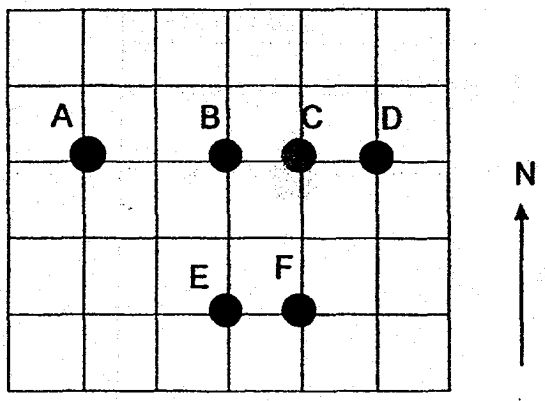
(Closes for lunch from 12.30 p.m. to 1.30 p.m.)

Ans : _____ h _____ min

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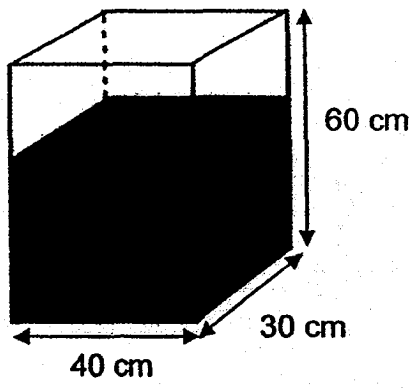
19. Study the square grid below.



Point _____ is northeast of Point _____.

Ans : _____ , _____

20. The rectangular tank below measures 40 cm by 30 cm by 60 cm. It is two-third filled with water. How much water is in the tank? ($1\ \ell = 1000\ cm^3$)



Ans : _____ ℓ

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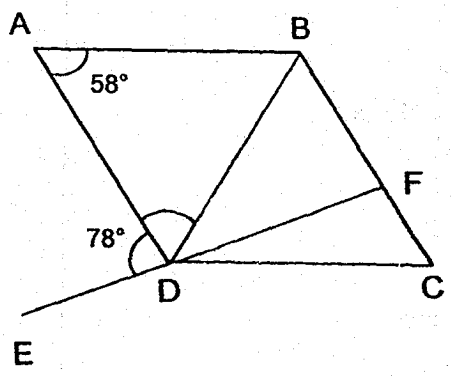
Questions 21 to 30 carry 2 marks each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (20 marks)

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21. Find the value of $3y + \frac{5y}{8} - 8$ when $y = 4$. Give your answer as a mixed number in the simplest form.

Ans : _____

22. In the figure, ABCD is a rhombus. EDF is a straight line. $\angle BAD = 58°$ and $\angle ADE = 78°$. Find $\angle FDC$.

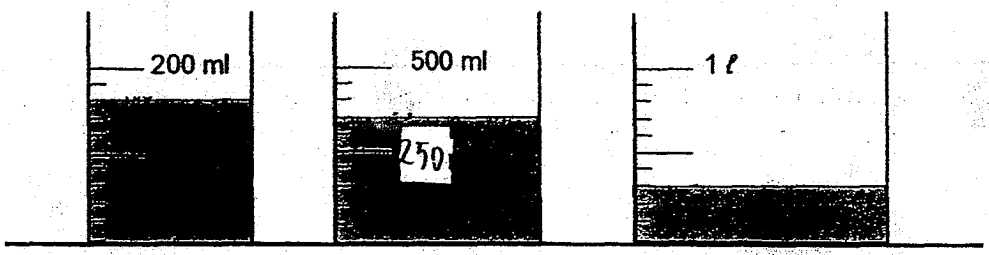


Ans : _____ °

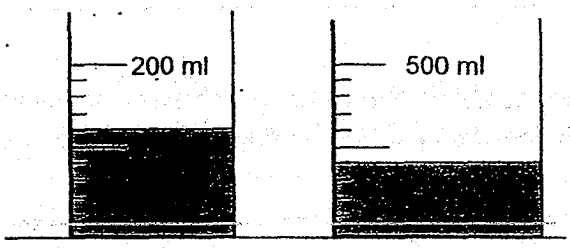
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23. At first, Containers A, B and C contained some water as shown below.

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Then, Ali poured some water from Containers A and B into Container C without any spilling over. The amount of water left in Containers A and B is shown below.



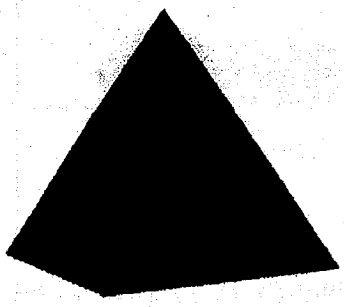
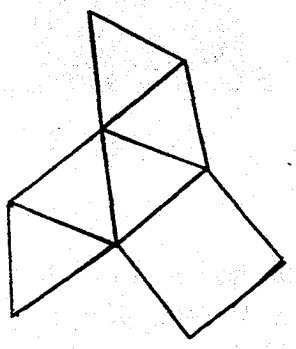
What would be the amount of water in Container C in the end?

Ans : _____ ml

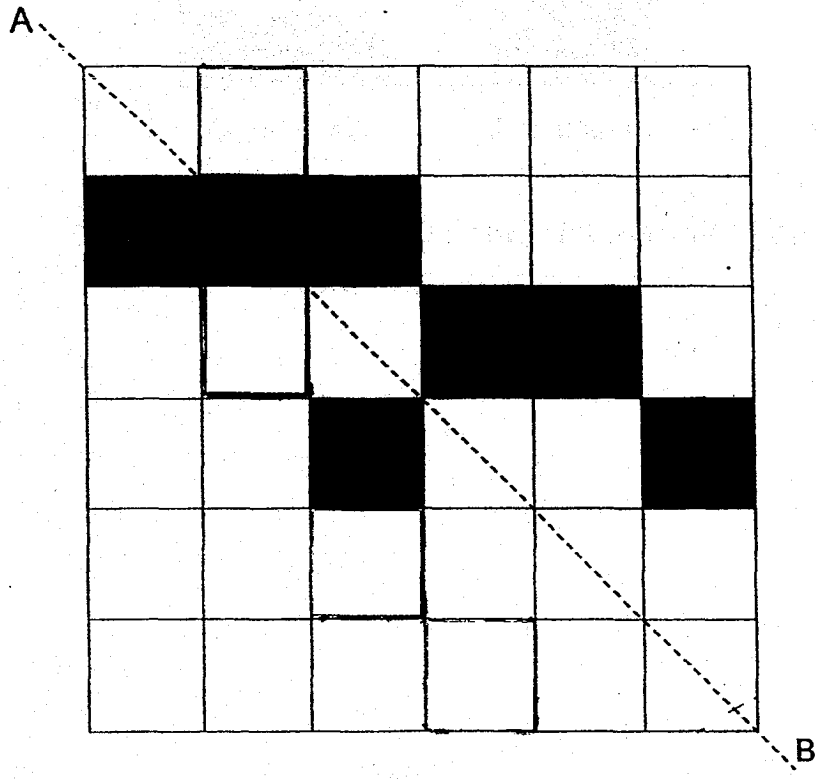
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24a. The net drawn for the solid below is **incorrect**. Shade the face that **does not** fit.

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Solid	Net
 Pyramid	

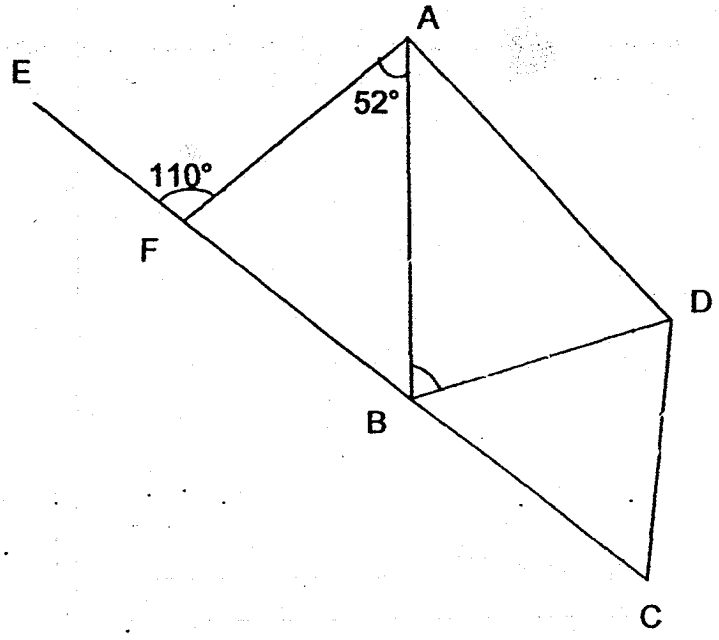
24b. In the figure below, shade the **least** number of squares to form a symmetrical pattern with AB as the line of symmetry.



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25. In the figure, ABCD is a trapezium and BCD is an isosceles triangle. DB = DC, BAF = 52° and ∠AFE = 110°. Find ∠BDC.

Do not write In this space



Ans : _____ °

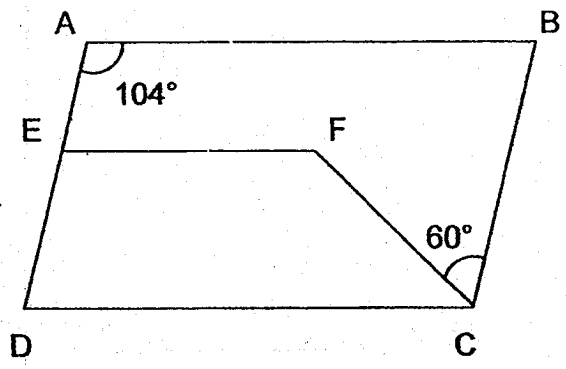
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26. A group of boys shared some stamps among themselves. They tried taking 12 stamps each, but found that the last boy had only 7 stamps. When they tried taking 10 stamps each, they found that there were 25 stamps left over. How many stamps were there altogether?

Ans : _____

27. In the figure, ABCD is a parallelogram. AB // EF // DC.
$\angle BAE = 104°$ and $\angle BCF = 60°$. Find $\angle EFC$.

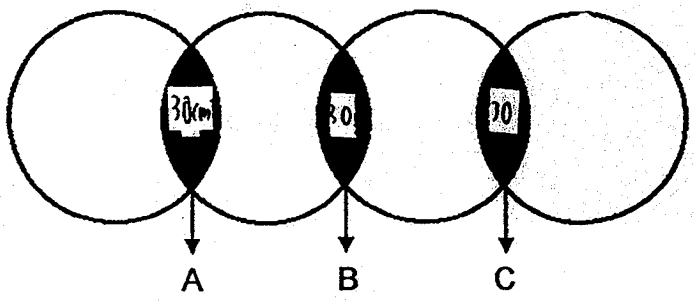


Ans : _____ °

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28. The figure below is made up of 4 identical circles, each with a radius of 7 cm. The circles overlap at the shaded parts A, B and C. The area of each shaded part is 30 cm^2. Find the total area of the **unshaded** parts. (Take $\pi = \frac{22}{7}$)

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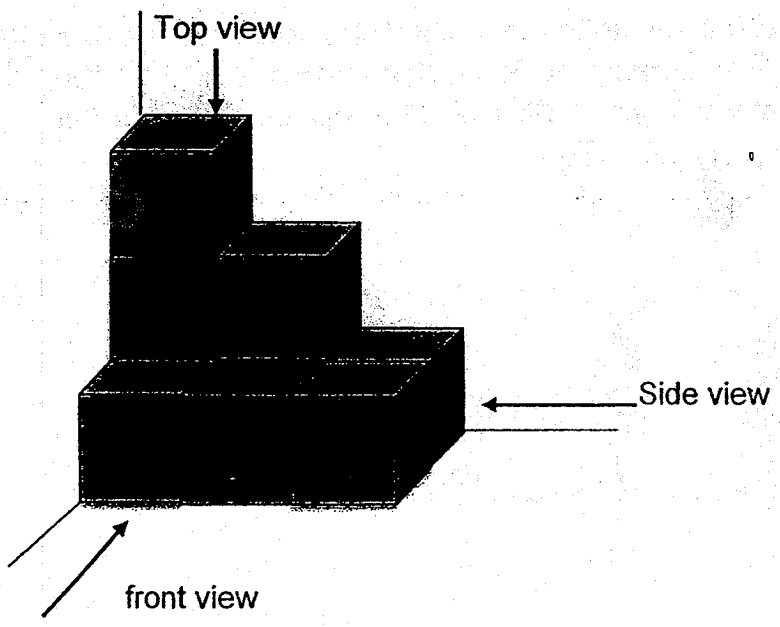


Ans : _____ cm^2

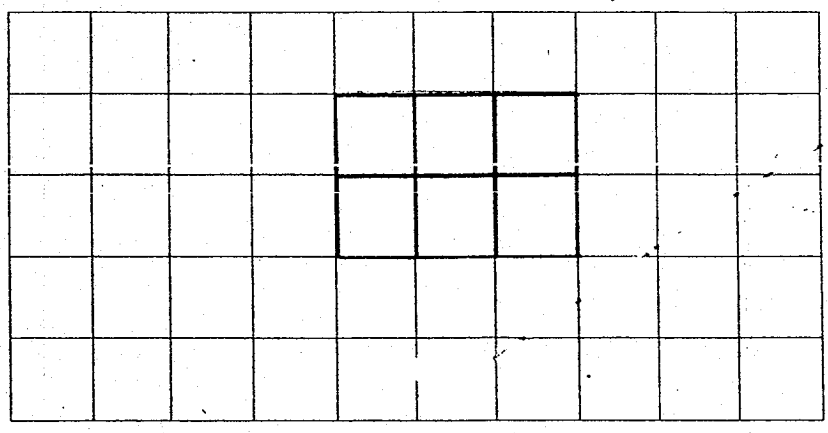
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29. The solid below is made up of identical cubes. Draw the top view and front view of the solid in the square grids below.

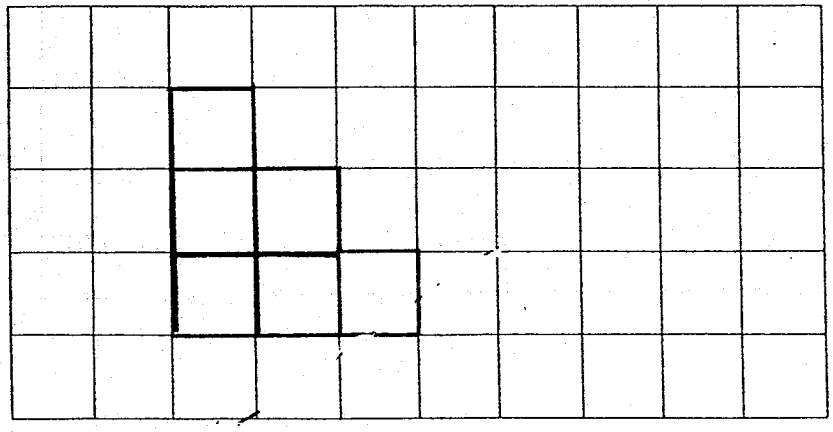
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Top view



Front view



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30. The average savings of a group of boys and girls is $245. There is an equal number of boys and girls. The average savings of the boys is $300.

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Each statement below is either true, false or not possible to tell from the information given above. For each statement, put **one** tick (✓) in the correct column.

Statement	True	False	Not possible to tell
Each boy saves more than each girl.			
The average savings of the girls is more than $300.			

- End of Booklet B -

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RIVER VALLEY PRIMARY SCHOOL

PRELIMINARY EXAMINATION

2018

MATHEMATICS

PRIMARY SIX

Date : 21 August 2018

Duration : 1 h 30 min

PAPER 2

INSTRUCTIONS TO CANDIDATES

1. Write your Name, Register No. and Class in the space 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. You are **allowed** to use a calculator.

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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)

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1. Shah spent $\frac{2}{5}$ of his money while Harrison spent $\frac{3}{8}$ of his money. Then they each had $120 left. How much did the two boys have altogether at first?

Ans : $ _____

2. The table below shows the number of tickets sold by 3 girls. Lisa sold half as many tickets as the total number of tickets sold by Jane and Kerry. Jane sold 38 tickets. How many tickets did Lisa sell?

Girls	Number of tickets sold
Jane	3p + 8
Kerry	2p - 4
Lisa	

Ans : _____

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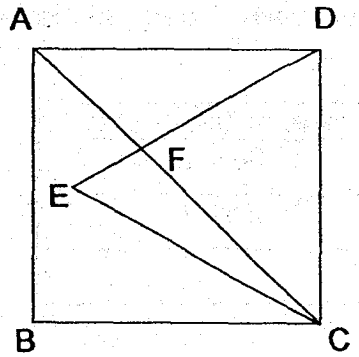
3. The average of 6 two-digit numbers shown below is 60. A digit from each of the last two numbers is missing. What are the last two numbers?

Do not write in this space

58	46	77	62	6	7

Ans : _____ and _____

4. In the figure below, ABCD is a square. CED is an equilateral triangle and AFC is a straight line. Find ∠AFD.

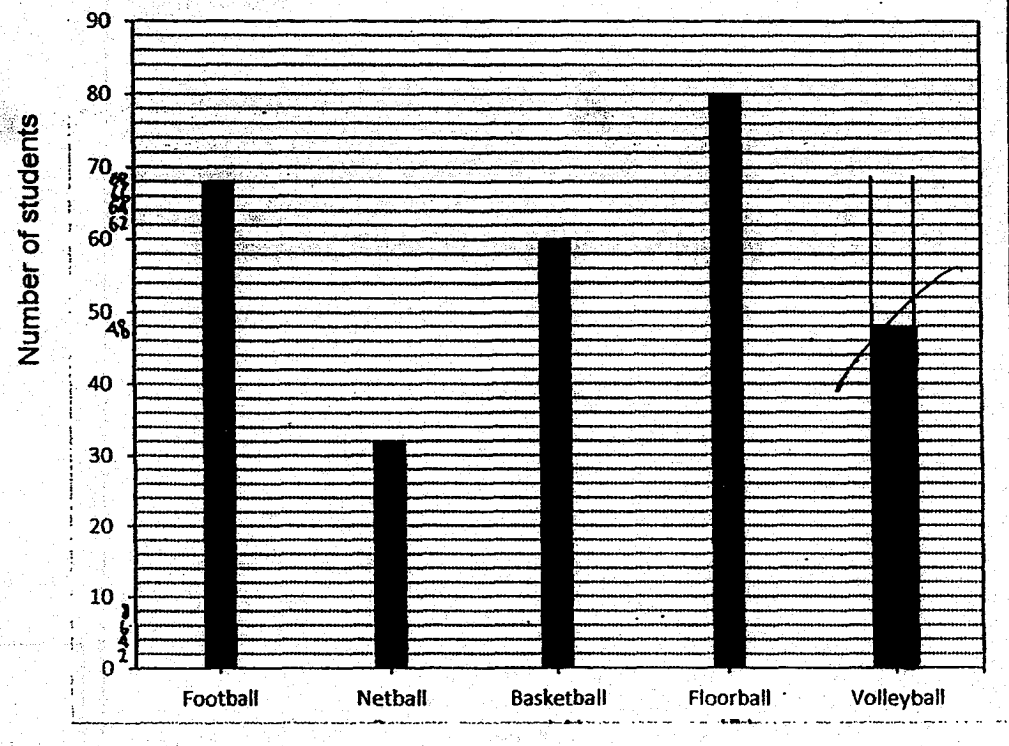


Ans : _____ °

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5. The graph below shows the results of a survey on the favourite sports of a group of students.

Do not write in this space



$\frac{1}{6}$ of the students chose volleyball as their favourite sport.

Draw the bar in the graph to show the number of students who chose volleyball as their favourite sport.

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For questions 6 to 17, 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.

(45 marks)

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6. Jane packs all her books into a suitcase and the total mass of her books and the suitcase is 59.4 kg. Rahim packs all his books into an identical suitcase and the total mass of his books and the suitcase is 20.1 kg. The mass of Jane's books is four times as heavy as that of Rahim's books. What is the mass of the empty suitcase?

Ans: _____ (3m)

7. Alice and Peggy went shopping together with a total sum of $105.50. The ratio of the amount of money Peggy spent to the amount Alice spent was 2 : 3. The amount of money Peggy had left was $9 more than what she had spent. Alice had $\frac{1}{2}$ as much money left as Peggy. How much money did Peggy have left?

Ans: _____ (3m)

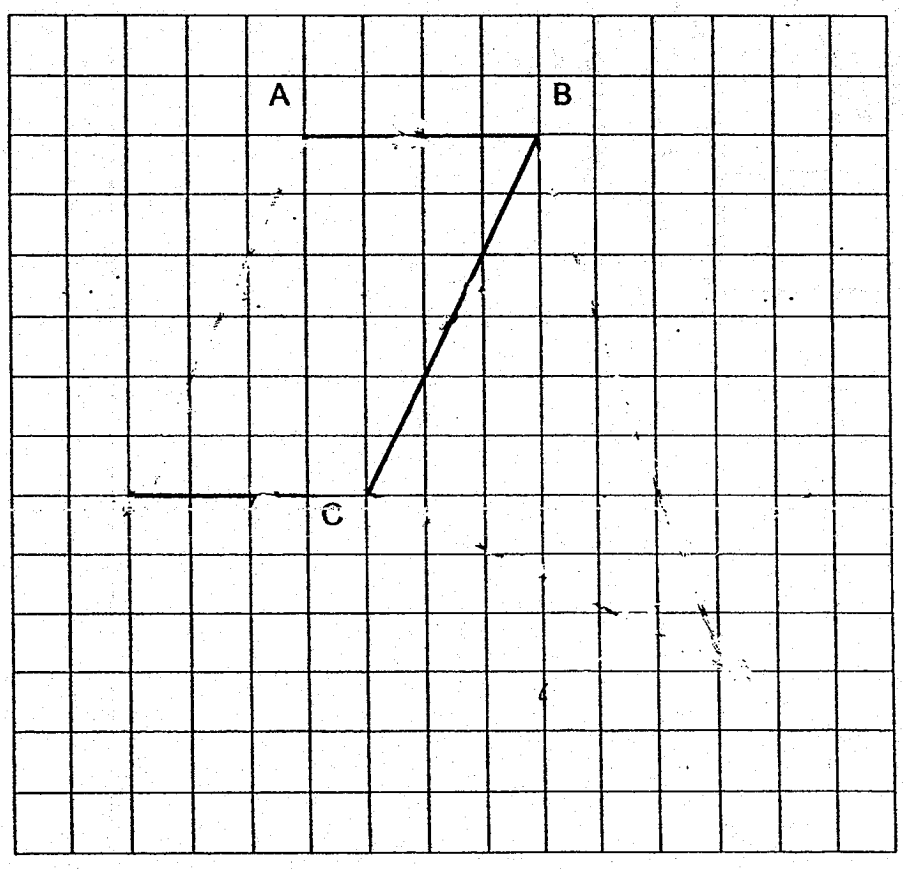
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8. In the square grid below, two sides of a parallelogram ABCD have been drawn.

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(a) Complete the drawing of the parallelogram ABCD. **Label** your drawing. (1 mark)

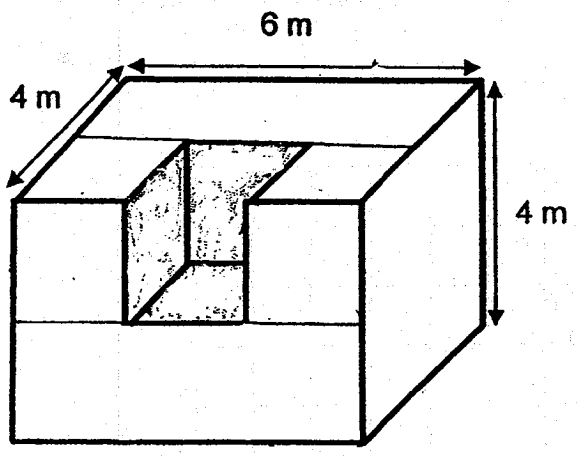
(b) BC also forms one side of a triangle BCE in which ∠BCE is a right angle and BC = CE. Complete the drawing of the triangle BCE within the grid. (2 marks)



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9. A solid measures 6 m by 4 m by 4 m. A 2-m cube was cut out from the centre of the solid. The remaining solid is then completely dipped into a pail of red paint. What is the total area of the surfaces that are red?

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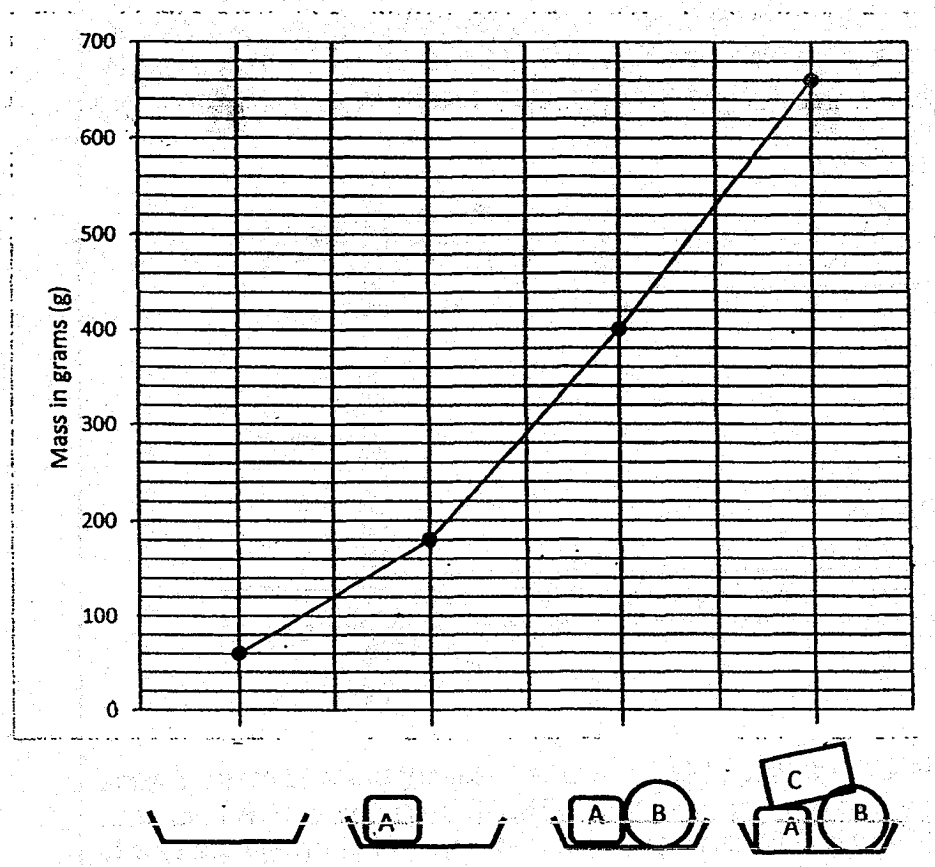


Ans: _____ (3m)

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10. Three objects A, B and C were placed on a container, one after another. The line graph below shows the mass of the container when empty and the mass when different objects were placed on it.

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(a) What is the mass of Object A?

(b) Find the average mass of the three objects.

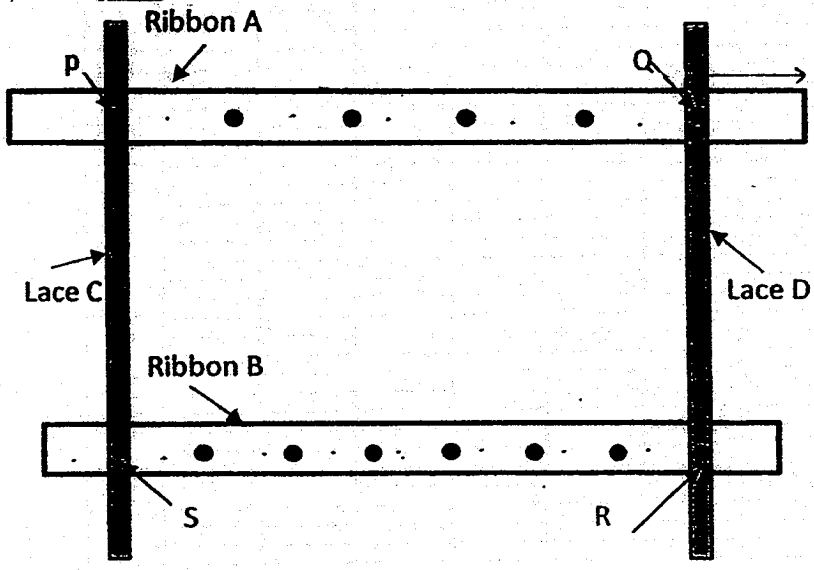
Ans: (a)_____ (1m)

(b) _____ (2m)

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11. Two similar ribbons, A and B, of different lengths, and two similar laces C and D are sewn together to make a frame as shown below.
There are 6 buttons on Ribbon A which divide the ribbon into 7 equal parts. There are 8 buttons on Ribbon B which divide it into 9 equal parts.
In the frame, P, Q, R and S are buttons that are sewn on the four corners of a rectangle.

Do not write in this space



Ribbon A is 294 cm long. Marisa wants to buy ribbons to make 3 such frames to give to the Senior's Home. The ribbons are sold in rolls of 9 m each. What is the minimum number of rolls of ribbon Marisa needs to buy?

Ans : _____ (3m)

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12. Ben bought some large-sized, medium-sized and small-sized T-shirts to be sold in his shop. 40% of the T-shirts he bought were large-sized T-shirts. 60% of the remaining T-shirts were medium-sized and the rest were small-sized T-shirts.

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The price of each type of T-shirt is shown in the table below.

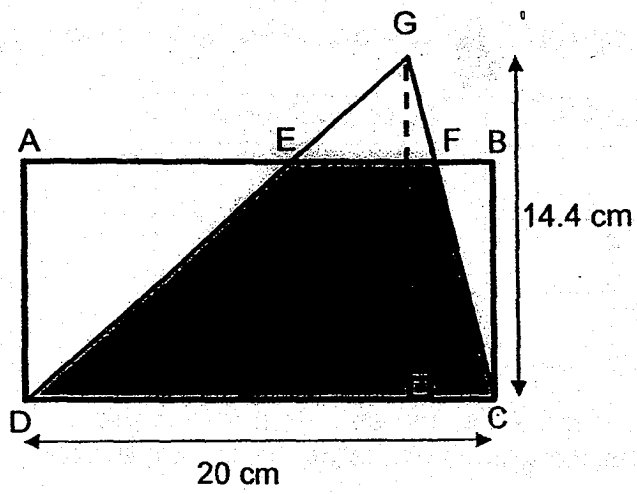
Types of T-shirts	Price per T-shirt
Large-sized	$18
Medium-sized	$10
Small-sized	$8

He paid $672 more for the medium-size T-shirts than the small-sized T-shirts. How much did he pay for the large-sized T-shirts?

Ans : _____ (4m)

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13. In the figure, ABCD is a rectangle. DC = 20 cm and the height of the triangle GDC is 14.4 cm. The area of the shaded part EFCD is $\frac{5}{6}$ of the area of triangle GDC. The ratio of the shaded part to the area of the rectangle is 3 : 5.



(a) What is the area of the shaded part?

(b) What is the length of AD?

Do not write in this space

Ans : (a) _____ (2m)

(b) _____ (2m)

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14. Alan and Benny took part in a charity race which started at 8.00 a.m. Alan's speed was 60 m/min slower than Benny's speed. Both boys did not change their speeds throughout the race. When Benny completed the race at 8.40 a.m., Alan only covered $\frac{3}{5}$ of the distance.

Do not write in this space

(a) What was the total distance of the race?

(b) What was Alan's speed in m/min?

Ans : (a) _____ (2m)

(b) _____ (2m)

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15. Jason bought some bookmarks and gave half of them to Kelvin. Kelvin bought some stickers and gave half of them to Jason.

Then Jason gave 7 bookmarks to his sister and found that he had $\frac{1}{9}$ as many bookmarks as stickers left. Kelvin gave 12 stickers to his younger brother and found that he had $\frac{1}{6}$ as many bookmarks as stickers left.

(a) How many stickers did Kelvin have in the end?

(b) How many bookmarks did Jason buy?

Do not write in this space

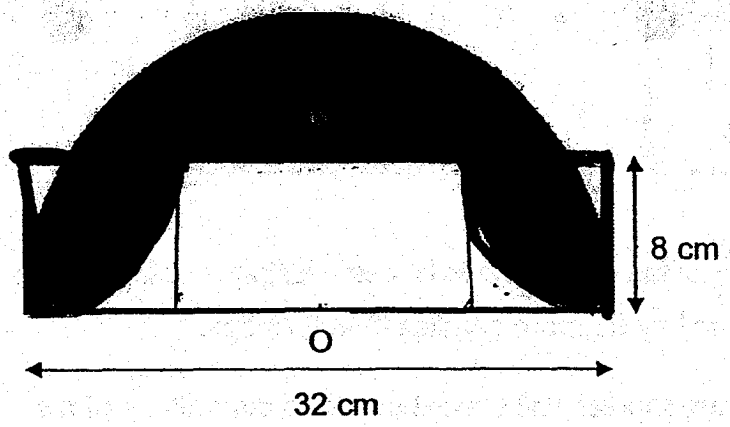
Ans : (a)_____ (3m)

(b) _____ (2m)

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16. The figure below is made up of a semi-circle, 2 small quadrants and a rectangle. O is the centre of the semi-circle. The diameter of the semi-circle is 32 cm and the radius of each quadrant is 8 cm. Find the area of the shaded parts. (Take $\pi = 3.14$)

Do not write in this space

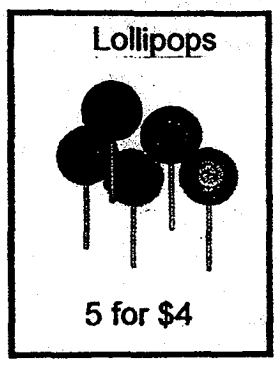


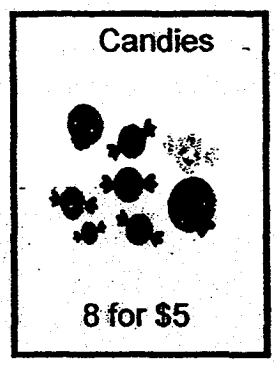
Ans : _____ (5m)

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17. At a supermarket, the prices of lollipops and candies are shown below.

Do not write in this space





If Govin uses $\frac{2}{5}$ of his allowance to buy only lollipops or candies, he will be able to buy 98 more candies than lollipops.

(a) How many candies will Govin be able to buy with $\frac{2}{5}$ of his allowance?

(b) How much is Govin's allowance?

Ans : (a) _____ (3m)

(b) _____ (2m)

- End of Paper 2 -

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EXAM PAPER 2018

LEVEL : PRIMARY 6

SCHOOL : RIVER VALLEY PRIMARY SCHOOL

SUBJECT : MATHEMATICS

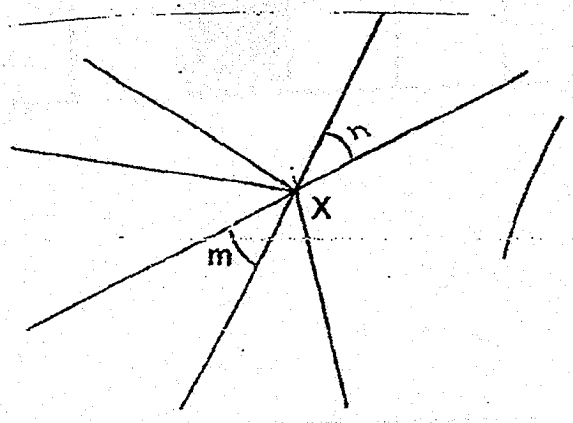
TERM : PRELIM

BOOKLET A

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

Q16. $\frac{1}{49}$

Q17.



Q18. 10h 15min

Q19. D, E

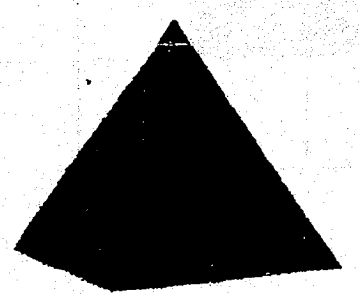
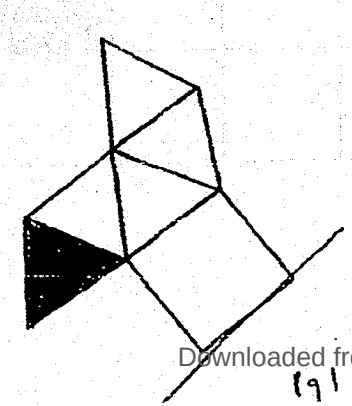
Q20. 48*l*

Q21. $6\frac{1}{2}$

Q22. 20°

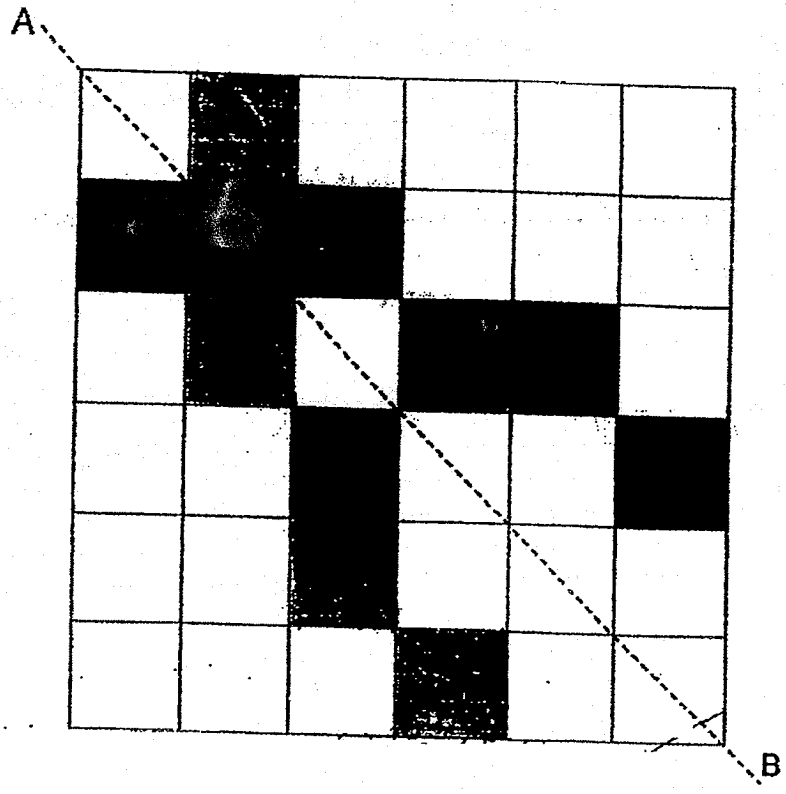
Q23. 490*ml*

Q24. (a)

Solid	Net
 Pyramid	

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(b)



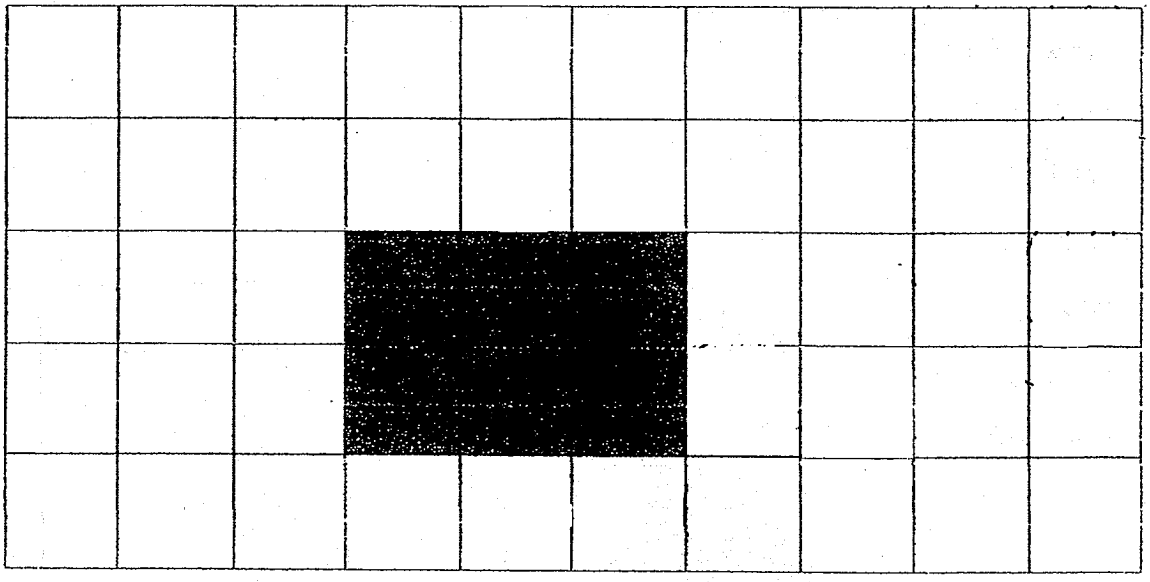
Q25. 64°

Q26. 175

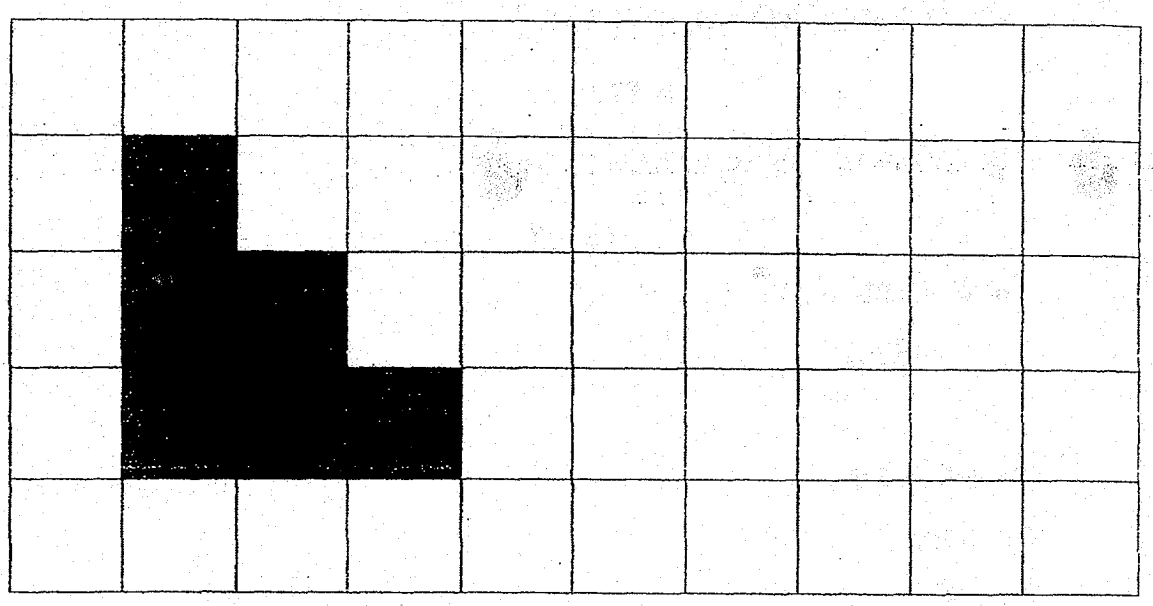
Q27. 136°

Q28. 436cm^2

Q29.



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Q30.

Statement	True	False	Not possible to tell
Each boy saves more than each girl			√
The average savings of the girls is more than $300		√	

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Q1. Amt. of money Shah has $= \$120 \times \frac{5}{3}$

$= \$200$

Amt. of money Harrison has $= \$120 \times \frac{8}{5}$

$= \$192$

Total $= 200 + 192$

$= \$392$

Q2. $3p + 8 = 38$

$3p = 30$

$p = 10$

Kerry $= (10 \times 2) - 4$

$= 16$

Lisa $= (16 + 38) \div 2$

$= 27$ tickets

Q3. Total $= 6 \times 60$

$= 360$

$360 - 58 - 46 - 77 - 62 = 117$

$117 - 60 = 57$

Ans: 60 and 57

Q4. Angle CAD $= 90° \div 2$

$= 45°$

Angle ADF $= 90° - 60°$

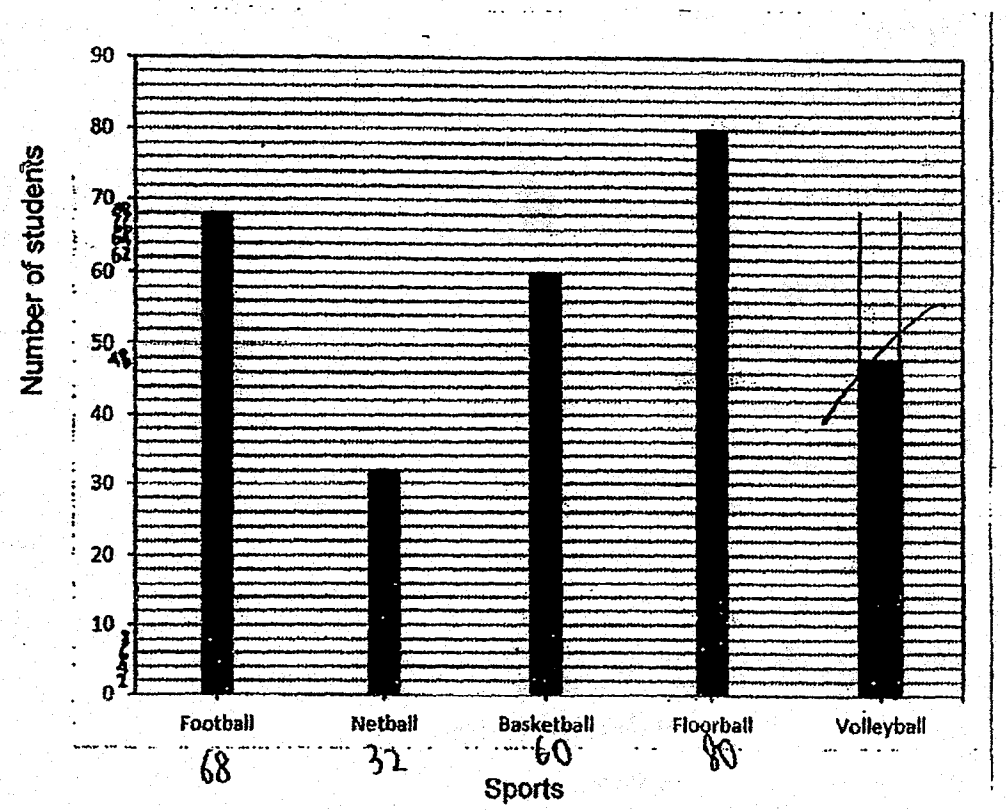
$= 30°$

Angle AFD $= 180° - 45° - 30°$

$= 105°$

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Q5.



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Solutions to Word Problems

River Valley Paper 2

P6 Mathematics SA2 2018

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Show your working clearly in the space provided for each question and write your answers in the spaces provided.

6. Let mass of Rahim's books = u

Mass of Jane's books = 4u

4u – u = 59.4 – 20.1 (Jane's suitcase minus Rahim's)

3u = 39.3

u = 39.3 ÷ 3 = 13.1 kg

Mass of empty suitcase = 20.1 – 13.1 = 7 kg

Ans: 7 kg

---

7. Ratio of spending of Peggy to spending of Alice → 2u : 3u

Peggy's amount left minus amount spent = +9

Ratio of money left of Peggy to those of Alice → 2 : 1 → (2u+9) : $\frac{1}{2}$ (2u+9)

→ 2u + 9 : 1u + 4.5

Total amount = 2u + 3u + 2u + 9 + 1u + 4.5 = 8u + 13.50 = 105.50

8u = 105.50 – 13.50 = 92

u = 92 ÷ 8 = 11.5

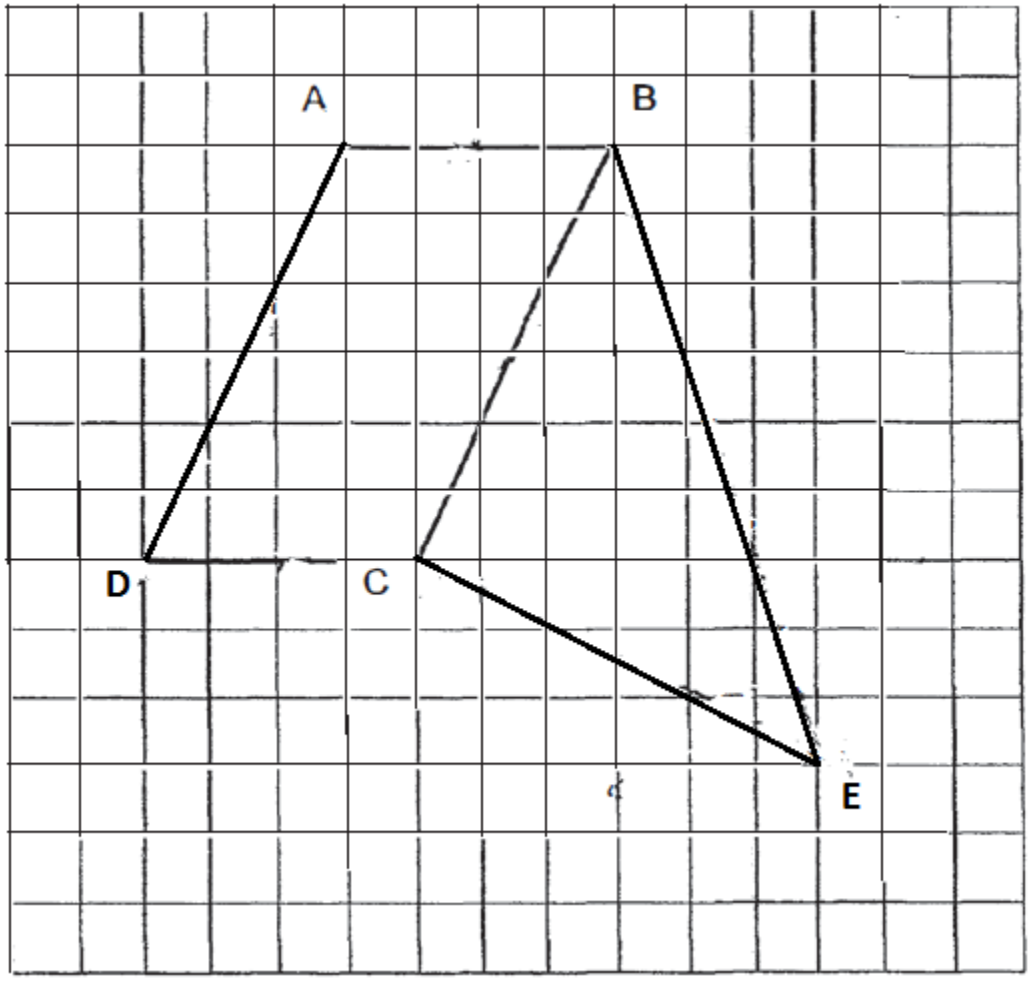
Amount Peggy had left = 2u + 9 = 2 x 11.5 + 9 = $32

Ans: $32

.

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8.



Ans: (a) as shown

(b) as shown

---

9. Surface area of original solid = 4 x 6 x 4 + 4 x 4 x 2 = 128 cm^2

Total surface area that is red = 128 + 2x2 + 2x2 = 136 cm^2

Ans: 136 cm^2

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10. a)

Mass of object A = 180 – 60 = 120 g

b)

Total mass of A,B,C = 660 – 60 = 600g

Average mass of A,B,C = 600 ÷ 3 = 200 g

Ans: (a) 120 g
(b) 200 g

---

11. $\frac{5}{7}$ of ribbon A = $\frac{5}{7}$ x 294 = 210 cm

$\frac{7}{9}$ of ribbon B = 210 cm

$\frac{9}{9}$ of ribbon B = 210 ÷ 7 x 9 = 270 cm

Length of 3 frames = (294 + 270) x 3 = 1692 cm = 16.92 m

Number of rolls of ribbon = 16.92 ÷ 9 = 1.88 ≈ 2

Ans: 2 rolls

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12. Let total number of T-shirts = 100u

Number of large-sized T-shirts = 40u

Number of medium-sized T-shirts = 0.6 x 60u = 36u

Number of small-size T-shirts = 100u – 40u – 36u = 24u

Difference in price between medium-size and small-sized T-shirts =

36u x 10 – 24u x 8 = 168u = $672

u = 672 ÷ 168 = 4

Price of large-sized T-shirts = 40 x 4 x 18 = $2880

Ans: $2880

---

13. a)

Area of triangle GDC = $\frac{1}{2}$ x 14.4 x 20 = 144 cm^2

Area of shaded part = $\frac{5}{6}$ x 144 = 120 cm^2

b)

Area of rectangle = $\frac{5}{3}$ x 120 = 200 cm^2

Length of AD = 200 ÷ 20 = 10 cm

Ans: (a) 120 cm^2

(b) 10 cm

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14. a)

Additional distance of Alan = 60 m/min x 40 min = 2400 m

$\frac{2}{5}$ of distance → 2400m

$\frac{5}{5}$ of distance → 2400 ÷ 2 x 5 = 6000 m

Total distance = 6000 m

b)

Benny's speed = 6000 ÷ 40 = 150 m/min

Alan's speed = 150 – 60 = 90 m/mn

Ans: (a) 6000 m

(b) 90 m/mn

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15. Let number of bookmarks initially = b

Let number of stickers initially = s

At first, both Jason and Kevin's ratio of bookmarks to stickers → $\frac{1}{2}$ b : $\frac{1}{2}$ s

At last, ratio of Jason's bookmarks to stickers → $\frac{1}{2}$ b - 7 : $\frac{1}{2}$ s

At last, ratio of Kelvin's bookmarks to stickers → $\frac{1}{2}$ b : $\frac{1}{2}$ s - 12

$\frac{1}{2}$ b – 7 = $\frac{1}{9}$ x $\frac{1}{2}$ s (1)

9b – 126 = s (2) = (1) x 18

$\frac{1}{2}$ b = $\frac{1}{6}$ x ($\frac{1}{2}$ s – 12) (3)

9b = $\frac{3}{2}$ s – 36 (4) = (3) x 18

$\frac{1}{2}$ s = 126 + 36 = 162 (5) = (4) – (2)

s = 162 x 2 = 324

9b - 126 = 324 substitute s to (2)

b = (324+ 126) ÷ 9 = 50

a)

Kelvin's stickers at the end = $\frac{1}{2}$ s – 12 = $\frac{1}{2}$ x 324 – 12 = 150

b)

Bookmarks Jason bought = b = 50

Ans: (a) 150
(b) 50

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16. Area of semi-circle = $\frac{1}{2}$ x π x 16 x 16 = 128π cm^2

Area of 2 quadrant = $\frac{1}{2}$ x π x 8 x 8 = 32π cm^2

Area of 2 crescents = 8 x 8 x 2 - 32π = 128 - 32π cm^2

Area of rectangle = 16 x 8 = 128 cm^2

Area of shaded parts = 128π – 128 - (128 - 32π) = 160π - 256 = 246.4 cm^2

Ans: 246.4 cm^2

---

17. a)

Number of lollipops $20 can buy = 20 ÷ 4 x 5 = 25

Number of candies $20 can buy = 20 ÷ 5 x 8 = 32

Difference in number in each set = 32 – 25 = 7

Number of sets required = 98 ÷ 7 = 14

Number of candies = 14 x 32 = 448 candies

b)

Cost of 14 sets = 14 x 20 = $280

Govin's allowance = $\frac{5}{2}$ x 280 = $700

Ans: (a) 448 candies

(b) $700

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