PEI CHUN PUBLIC SCHOOL

PRELIMINARY EXAMINATION, 2019

MATHEMATICS

PAPER 1

(BOOKLET A)

Additional materials: Optical Answer Sheet (OAS)   **Total Time For Booklets A & B : 1 h**

Name : _____ (   )

Class : Primary 6 / _____

Date   : 22 August 2019

Maths Teacher: _____

INSTRUCTIONS TO CANDIDATES

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

ANSWER ALL THE QUESTIONS.

SHADE YOUR ANSWERS IN THE OPTICAL ANSWER SHEET (OAS) PROVIDED.

YOU ARE **NOT** ALLOWED TO USE A CALCULATOR.

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 correct oval (1, 2, 3 or 4) on the
Optical Answer Sheet. (20 marks)

1. 5 ten thousands, 8 hundreds and 9 tens is _____.

    (1)   58 090

    (2)   58 009

    (3)   50 890

    (4)   50 809

2. In the figure below, how many of the marked angles are greater than 90°?
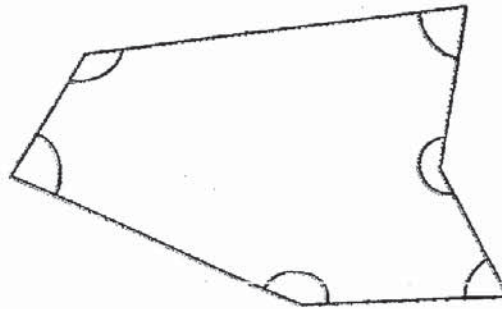
    (1)   5

    (2)   2

    (3)   3

    (4)   4

3. What is the value of $41.8 \div 200$?

    (1)   0.209

    (2)   0.29

    (3)   2.9

    (4)   20.9

4. In 387.54, which digit is in the hundredths place?

    (1)   8

    (2)   5

    (3)   3

    (4)   4

5. Jimmy had three 20-cent coins and two 50-cent coins. He put some coins into a donation tin. Which one of the following could he have donated?

    (1) $0.30

    (2) $0.80

    (3) $0.90

    (4) $1.50

6. How many of the following letters has / have the dotted line as a line of symmetry?
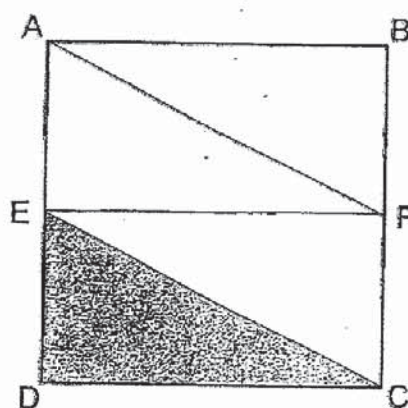
NOSE

    (1)   1

    (2)   2

    (3)   3

    (4)   4

7. The picture below shows a rectangle.
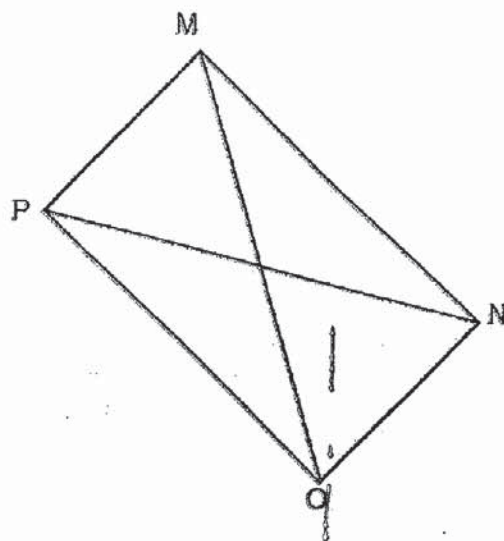
Which line is perpendicular to line MP?

(1) NO

(2) NP

(3) MO

(4) MN

8. Points E and F are mid-points of the square ABCD shown in the figure below. What fraction of ABCD is shaded?

(1) $\dfrac{3}{4}$

(2) $\dfrac{2}{3}$

(3) $\dfrac{1}{3}$

(4) $\dfrac{1}{4}$

9. Which of the following is closest to $\frac{1}{2}$?

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

   (2) $\frac{4}{7}$

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

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

10. Ken bought a calculator from the school bookshop as shown. Which of the following could be the mass of the calculator?
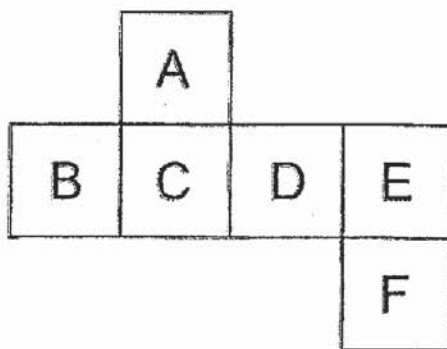
    (1) 15 g

    (2) 150 g

    (3) 500 g

    (4) 5000 g

11. The figure below shows the net of a cube.

```
          ┌───┐
          │ A │
      ┌───┼───┼───┬───┐
      │ B │ C │ D │ E │
      └───┴───┴───┼───┤
                  │ F │
                  └───┘
```

    Which 2 faces of the cube are opposite each other?
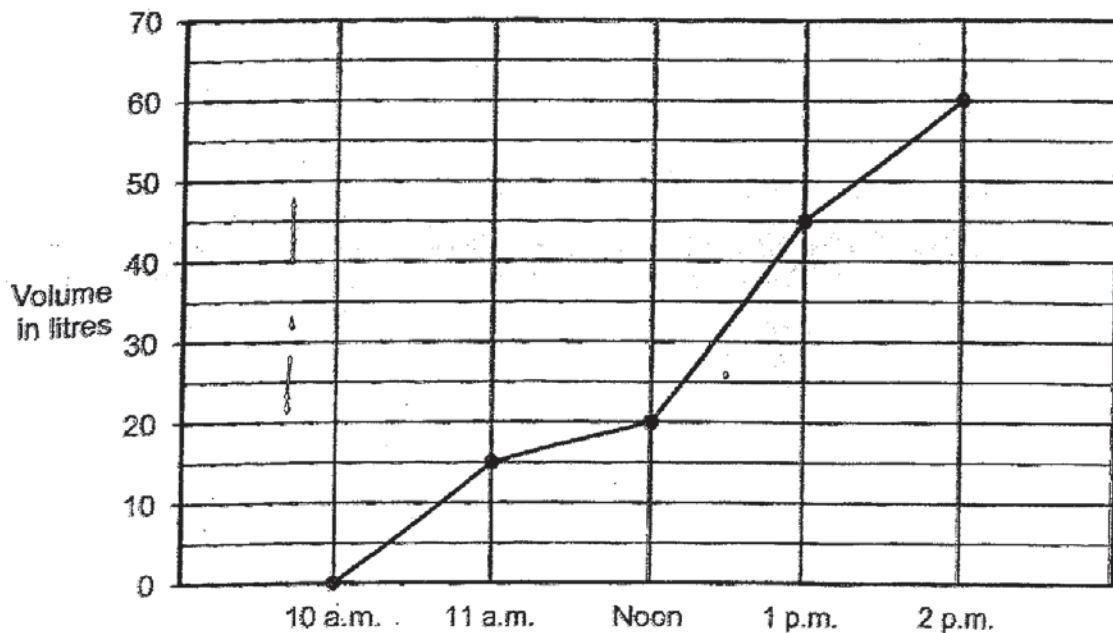
    (1) B and E

   (2) B and C

    (3) A and F

    (4) A and D

12. An empty tank was filled with water at 10 a.m. Water flowed into the tank from 10 a.m. to 2 p.m. The line graph shows the amount of water in the tank from 10 a.m. to 2 p.m.


During which one-hour period was the increase in the volume of water the greatest?

(1) Between 10 a.m. and 11 a.m.

(2) Between 11 a.m. and noon

(3) Between noon and 1 p.m.

(4) Between 1 p.m. and 2 p.m.

13. There are 2 numbers. One is 5 times the other number. They have exactly 5 common factors. Two of the common factors are 1 and 8. What is the greater number?

(1) 40
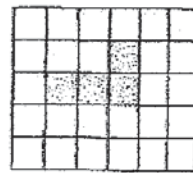
(2) 80

(3) 120

(4) 160

14. Below are the front view, top view and side view of a solid figure.
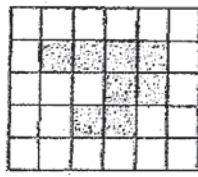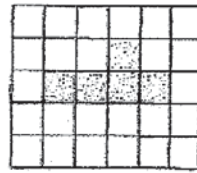
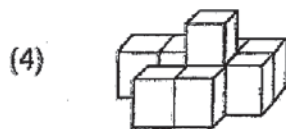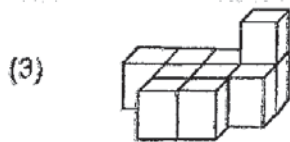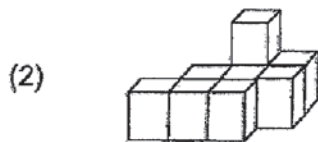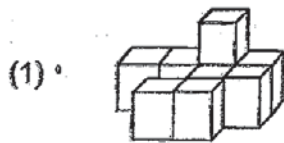Top view   Front view   Side view

Which of the following is the correct solid figure?

(1)

(2)

(3)

(4)

15. Bala is 12a years old. He is now 4 times as old as Mariam. How old will Bala be when Mariam is 24 years old?

   (1)   24 - 3a

   (2)   24 + 9a

   (3)   24 + 12a

   (4)   24 - 36a

PEI CHUN PUBLIC SCHOOL

PRELIMINARY EXAMINATION, 2019

MATHEMATICS

PAPER 1

(BOOKLET B)

Total Time For Booklets A & B : 1 h

Name : _____ (   )

Class : Primary 6 / _____

Date : 22 August 2019

Maths Teacher: _____

INSTRUCTIONS TO CANDIDATES

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

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ANSWER ALL QUESTIONS.

SHOW YOUR WORKING CLEARLY AS MARKS ARE AWARDED FOR CORRECT WORKING.

WRITE YOUR ANSWERS IN THIS BOOKLET.

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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)
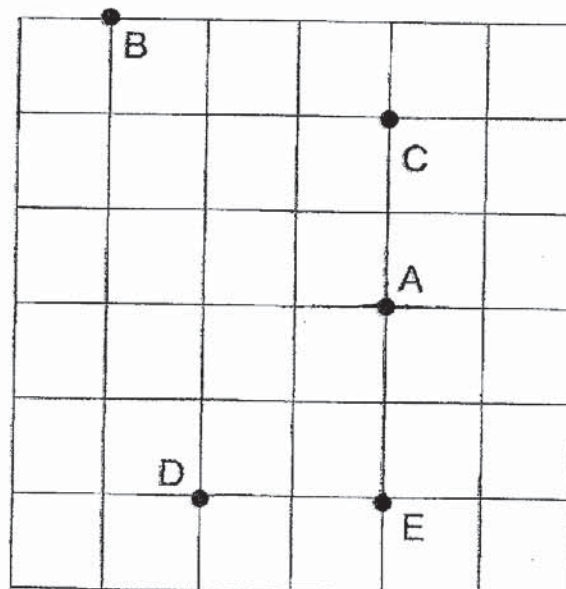
16.   Express 0.9% as a decimal.

Answer: _____

17.   Write a fraction that is greater than $\frac{1}{2}$ but smaller than $\frac{7}{8}$.

Answer: _____

18.   The figure below shows a square grid. Sammy was standing at point *A* and facing
west. He then made a $\frac{3}{4}$-turn clockwise. Which point is Sammy facing now?

Answer: _____

SCORE

19. Mohan needs to mix 9 litres of pineapple juice with 12 litres of apple juice to get the mixed juice he wants. If he uses 8 litres of apple juice, how much pineapple juice will he need?

Answer: _____ ℓ

20. 3 children took part in a 200 m race. The table below shows the time they took to complete the race.

Steve	Kumar	George
25.39 s	23.75 s	25.3 s

Arrange the names of the children from the fastest to the slowest.

Answer: _____ , _____ , _____
          Fastest   Slowest

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

21. A flask was filled with 2.05 ℓ of water. 120 ml of water was poured out from the flask. How many litres of water was left in the flask?
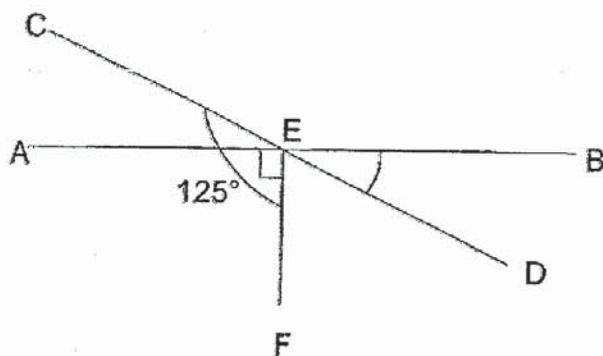
Answer: _____ ℓ

SCORE

22. The table below shows the prices of hand towels and bath towels.

Item	Price per item
Hand Towel	p
Bath Towel	$(p + 5)$

Mrs Lim paid $149 for 8 hand towels and some bath towels.
If $p = 4$, how many bath towels did she buy?

Answer: _____

23. The figure below is not drawn to scale. AEB and CED are straight lines,
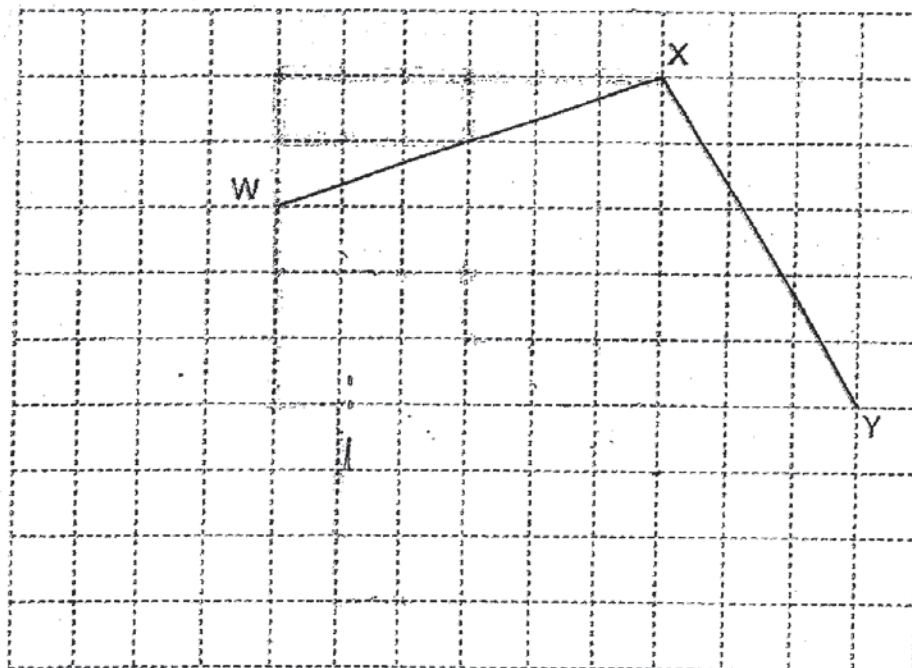∠CEF = 125° and ∠AEF is a right angle. Find ∠DEB.

Answer: _____ °

SCORE

24. In the square grid below, WX and XY are two sides of a quadrilateral WXYZ. WX and YZ are a pair of parallel lines. The length of YZ is $\frac{1}{2}$ the length of WX.

(a) Complete the drawing of the quadrilateral WXYZ within the grid.

(b) What is the name given to the quadrilateral WXYZ? Circle your answer.

parallelogram   rhombus   trapezium

---

25. The table below shows the rate of charges for the rental of bicycles.
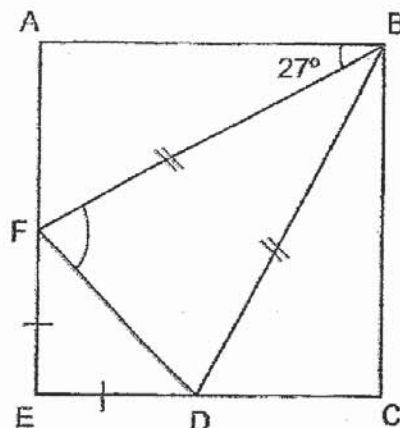
BICYCLE FOR RENT	
For the first hour	$4.00
For every additional $\frac{1}{2}$ hour or part thereof	$1.50

Hardip rented a bicycle at 2.45 p.m. He returned it at 5.30 p.m. How much did he pay for renting the bicycle?

Answer: $ _____

SCORE

26. In the figure below, ABCE is a square. BDF and EDF are isosceles triangles. ∠ABF is 27°. Find ∠BFD.

Answer: _____ °

27. A tailor makes 8 shirts and 5 blouses. She sews 6 red buttons on each shirt and 4 green buttons on each blouse.

Colour of buttons	Number of buttons in a box	Price per box
Red	5	$1.35
Green	4	$2.20

What is the least amount of money she has to pay for the all the red and green buttons she needs?

Answer: $ _____

SCORE

28. Nazir had a rectangular piece of paper coloured on one side. He folded it along the dotted line as shown in Figure A.

14 cm

10 cm

Figure A

After folding

4 cm

Figure B

Find the area of the shaded part in Figure B.

Answer: _____ cm²

29. Some chilli sauce was spilt on the table below that shows the number of pupils who volunteered for a donation drive.

| Day	Day 1	Day 2	Day 3	Day 4	Day 5
Number of pupils who volunteered	10	30	25	3	

The average number of pupils who volunteered from Day 1 to Day 5 was 25. What was the lowest possible number of volunteers for Day 5?

Answer: _____

SCORE

30. Tom bought a plant that was 11 cm tall. He measured the height of the plant at the end of each week. He then recorded the increase in the height of the plant compared to the previous week. The line graph below shows his record.
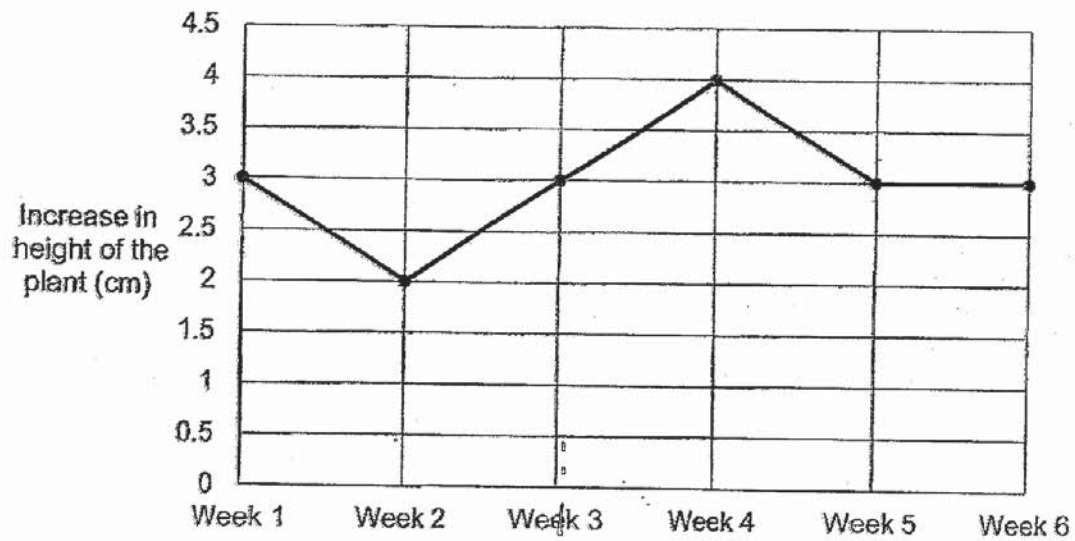
Each statement below is either true, false or not possible to tell from the information given. For each statement, put a tick (✓) in the correct column.

Statement	True	False	Not possible to tell
The plant was 15 cm tall at the end of Week 4.			
The plant remained at the same height from Week 5 to Week 6.			

End of Paper

SCORE

Index No.
| | | | | | — | |

PEI CHUN PUBLIC SCHOOL

PRELIMINARY EXAMINATION, 2019

MATHEMATICS

PAPER 2

Time: 1 h 30 min

Name : _____ (   )

Class : Primary 6 / _____

Date : 22 August 2019

Maths Teacher: _____

Parent's Signature: _____

Paper 1 (Booklet A)	20
Paper 1 (Booklet B)	25
Paper 2	55
TOTAL	100

INSTRUCTIONS TO CANDIDATES

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YOU ARE ALLOWED TO USE A CALCULATOR.

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 answers in the units stated. **(10 marks)**

1. The figure shows a quadrant with a radius of 56 cm. Find the perimeter of the quadrant. Express your answer in terms of π.
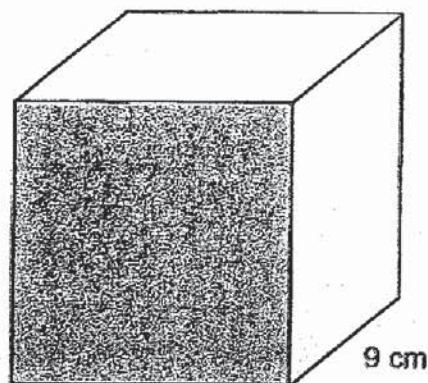

56 cm
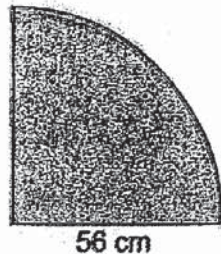
Answer: _____ cm

2. Mr Yung has m stickers. He used 6 stickers and gave the rest equally to his 5 pupils. Express the number of stickers each pupil received in terms of m.
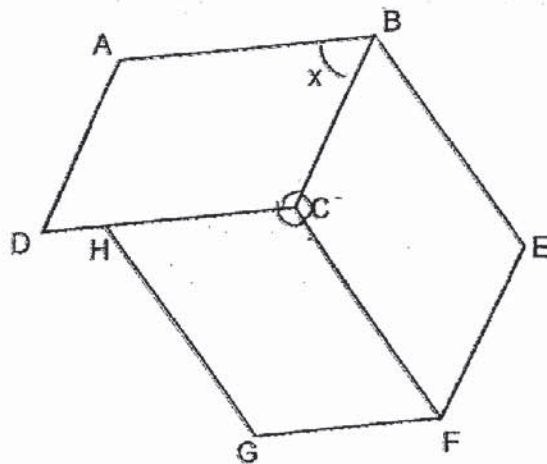
Answer: _____

SCORE

3. The figure shows a cuboid with a volume of 3249 cm³
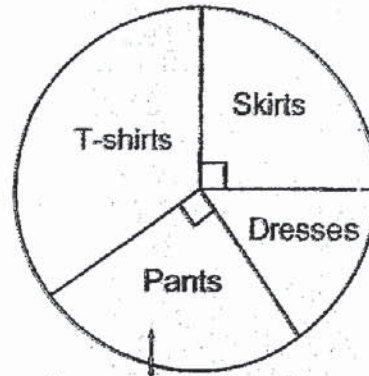One side of the cuboid is 9 cm. What is the area of the shaded face?

9 cm

Answer: _____ cm²

4. The figure below is made up of 3 identical parallelograms. Find $\angle x$.

A   B

x

D   H   C
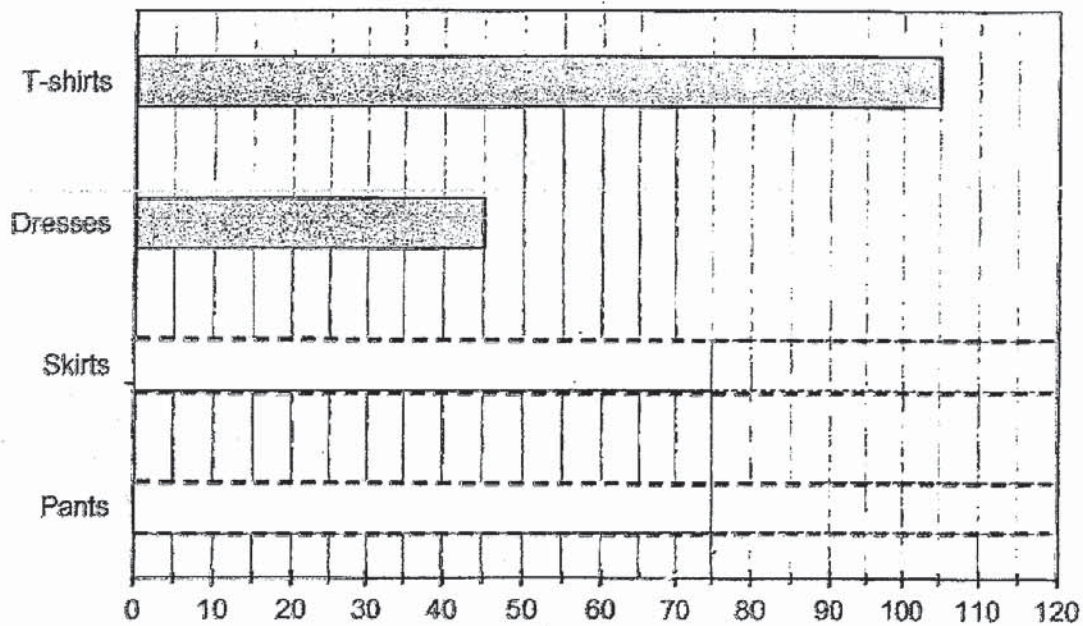
E

G   F

Answer: _____ °

SCORE

5. The pie chart below shows the four types of clothing sold by a shop in June.

The number of items sold for each type of clothing is also represented by the bar graph below.   The bars for the number of skirts and pants sold are not drawn.

(a) Find the total number of clothing items sold.

(b) Complete the bar graph for the number of pants and skirts sold.   [1]

Answer: (a) _____ [1]

SCORE

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.   (50 marks)
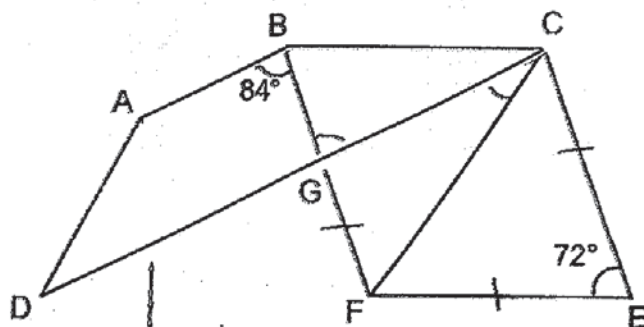
6. Mary bought $2\frac{3}{5}$ kg of flour. She used $\frac{1}{6}$ of it to bake some cookies. The rest of the flour was used to bake cakes. She used $\frac{5}{8}$ kg of flour for each cake. How many cakes did she bake?

Answer: _____ [3]

SCORE

7. In the figure below, ABCD is a trapezium and BCEF is a rhombus.
∠ABF = 84° and ∠CEF = 72°.

Find

(a) ∠BCD
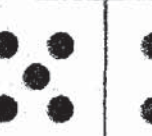
(b) ∠GCF

Answer: (a) _____ [2]

       (b) _____ [2]

SCORE

8. Patterns using dots are formed as shown below.

| Pattern 1 | Pattern 2 | Pattern 3 | Pattern 4 |

(a) How many dots are there in Pattern 7?

(b) What is the pattern number with 143 dots?

Answer: (a) _____ [1]

(b) _____ [2]

9. Two motorists, X and Y, were travelling at a uniform speed from Town A to Town B. Motorist X started his journey at 7 a.m. and travelled at an average speed of 110 km/h. He reached Town B at 1 p.m.

Motorist Y started from the same place 2 hours later than Motorist X. When Motorist X reached Town B, Motorist Y was still 200 km from Town B. Both motorists did not change their speed throughout the journey.

(a) What was the distance between Town A and Town B?

(b) At what speed was Motorist Y travelling at?

Answer: (a) _____ [1]

(b) _____ [2]

SCORE

10. In a kindergarten class, there are 9 girls and some boys. The average height of the girls is 82.6 cm and the average height of the boys is 85.8 cm. The total height of the children is 1000.8 cm. How many boys are there in the class?

Answer: _____ [3]

SCORE

11. The pie chart shows the amount of money collected by various stalls at a funfair.

The games stall collected $3264. The amount of money collected by the drinks stall is twice of the amount of money collected by the souvenir stall.

(a) What was the total amount of money collected by the drinks stall, souvenir stall and the food stall?

(b) What fraction of the total money was collected by the souvenir stall? Express your answer in the simplest form.

Answer: (a) _____ [1]

(b) _____ [2]

SCORE

12. The figure below shows an empty flower vase. It is made from two rectangular containers. The top container has a square base. The bottom container measures 53 cm by 20 cm by 60 cm. The flower vase is then filled with water flowing from a tap at a rate of 2.18 ℓ per minute.
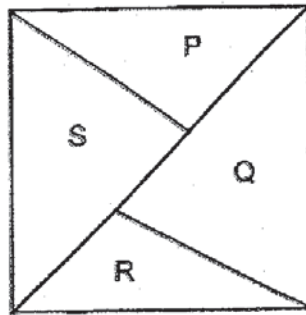
60 cm

20 cm

53 cm
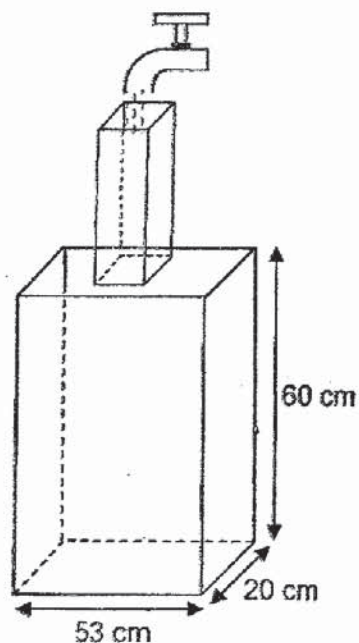
After 30 minutes, the total height of the water in the container is 68 cm.

Find the length of the square base of the top container.

Answer: _____ [3]

SCORE

13. The square below is divided into 4 parts, P, Q, R and S. The areas of P and S are in the ratio 5 : 7 while the areas of Q and R are in the ratio of 2 : 1.

(a) What fraction of the whole square is part S?

(b) Part S is bigger than part R by 57 cm². Find the area of the square.

Answer: (a) _____ [1]

(b) _____ [3]

SCORE

14. In a school, $\frac{3}{4}$ of the pupils are boys. $\frac{5}{6}$ of the boys and 105 girls wear spectacles. $\frac{1}{5}$ of the pupils do not wear spectacles. How many pupils wear spectacles?

Answer: _____ [4]

SCORE

15. Peter gave 20% of his monthly salary to his mother every month. He gave $896 to his mother in May. In June, his salary decreased by 15%.
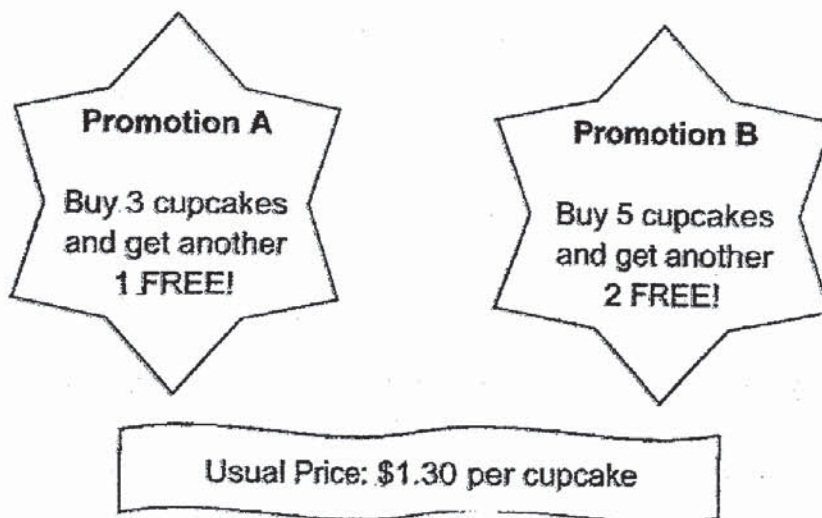
(a) What was his salary in June?

(b) How much more did he give to his mother in May than June?

Answer: (a) _____ [3]

(b) _____ [2]

SCORE

16. A bakery had the following promotions:

Promotion A

Buy 3 cupcakes and get another 1 FREE!

Promotion B

Buy 5 cupcakes and get another 2 FREE!

Usual Price: $1.30 per cupcake

(a) Mr Pek wanted to buy 28 cupcakes using Promotion B. How much did he pay?

(b) Mrs Sun wanted to buy some cupcakes. She would save $5.20 by using Promotion B instead of Promotion A. How many cupcakes did Mrs Sun want to buy?

Answer: (a) _____ [2]

(b) _____ [3]

SCORE

17. Two wheels with centres A and B are placed a distance from each other on the straight line XY as shown in Figure 1. The position is not drawn to scale. The wheels turn along XY towards each other. Each wheel makes 5 complete turns before they touch each other as shown in Figure 2.

(a) The radius of each wheel is 5 cm. Find the distance between A and B before the wheels turn towards each other. (Take $\pi = 3.14$)
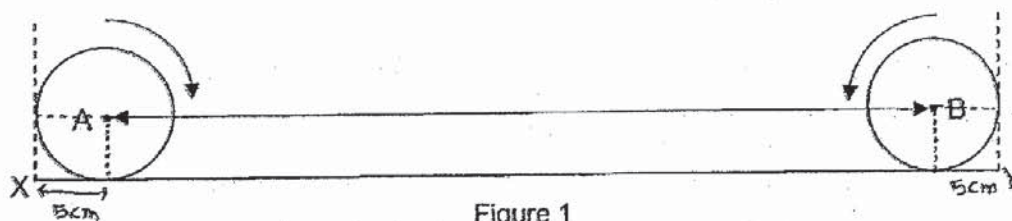

Figure 1

(b) Find the area of the shaded part shown in figure 2 after the wheels have each made 5 complete turns.
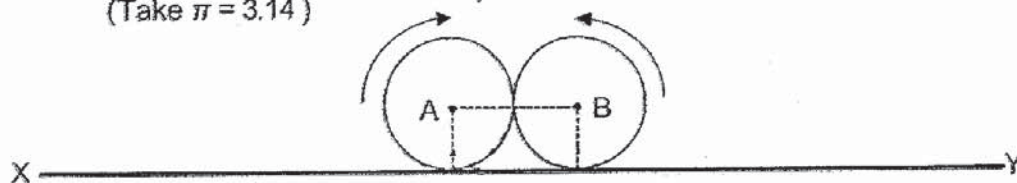
(Take $\pi = 3.14$)

Figure 2

Answer: (a) _____ [3]

(b) _____ [2]

End of Paper

SCORE

ANSWER KEY

PAPER 1 :BOOKLET A

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

Q11	Q12	Q13	Q14	Q15
3	3	2	1	2

BOOKLET B

Q16. (0.009)

$1\% = \frac{1}{100}$

$0.9\% = 0.9 \times \frac{1}{100} = 0.009$

Q17. Any fraction within $\frac{1}{2}$ and $\frac{7}{8}$.

Q18. E

Q19. (6ℓ)

$\frac{8}{12} \times 9 = 6$

Q20. (Kumar , George , Steve)
Fastest   Slowest

Q21. (1.93ℓ)
$2.05ℓ = 2050ml$
$2050 - 120 = 1930ml = 1.93ℓ$

Q22. (13)
Price of Hand towel = 4   Price of Bath towel = 4+5=9
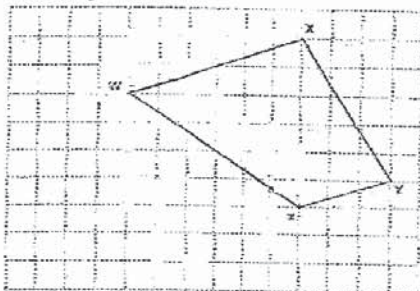$149 - (8 \times 4) = 117$
$117 \div 9 = 13$

Q23. (35°)
$125 - 90 = 35$

Q24.a)

b) trapezium

Q25. ($10)
2.45pm to 5.30pm : 2h 45min
Payable price :first 1h price + 4 ($\frac{1}{2}$ h price) = 4 + 1.5×4 = 10

Q26. (72°)
∠AFD =180 – 27 – 90 = 63
∠DFE = (180 − 90) ÷ 2 = 45
∠BFD = 180 − 63 − 45 = 72

Q27)   ($24.50)
No. of red button=8×6 = 48
No. of green button=4×5 = 20

No. of box to purchase (red)= 48 ÷5 = 9 R 3 ≈ 10 (rounded up)
No. of box to purchase (green)=20 ÷ 4 = 5
Total cost= 5×2.2 + 10×1.35 = 11 + 13.5 = 24.50

Q28. [56 cm^2]
Total area = 10×14 = 140
Unshaded area = 2 × $\frac{1}{2}$ ×6 ×14 =84
Shaded area= 140 – 84 = 56

Q29. (21)
Total pupils = 25 × 5 = 125
Day 4 + Day 5 = 125 – 10 – 30 – 25 = 60
Largest possible pupils for Day 4 :39
60 – 39 = 21

Q30.

Statement	True	False	Not possible to tell
The plant was 15 cm tall at the end of Week 4.		✓	
The plant remained at the same height from Week 5 to Week 6			✗

2

PAPER 2

Q1. ($28\pi + 112$ cm)

Circumference $= \frac{1}{4} \times 56 \times 2 \times \pi = 28\pi$

Perimeter $= 28\pi + 56 + 56 = 28\pi + 112$

Q2. ($\frac{(m-6)}{5}$)

Q3. ($361 cm^2$)

volume = cross sectional area $\times$ *height*

height = 9

area $= 3249 \div 9 = 361$
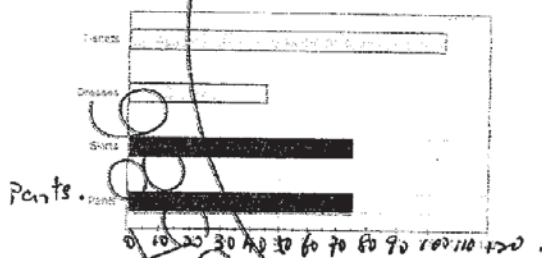
Q4. (60°)

$360 \div 3 = 120$

$180 - 120 = 60$

Q5

a) (300)

$\frac{1}{2}$ of piechart : $105 + 45 = 150$

total no. of clothing $= 150 \times 2 = 300$

b)

Q6. (3)

Used on cookies : $\frac{1}{6} \times 2\frac{3}{5} = \frac{13}{30}$

Left $= 2\frac{3}{5} - \frac{13}{30}$

No. of cakes baked : $2\frac{1}{6} \div \frac{5}{8} = 3$

Q7. a) (24°)

$\angle BCD = 180 - 72 - 84 = 24$

b) (30°)

$\angle BCF = (180 - 72) \div 2 = 54$

$\angle GCF = 54 - 24 = 30$

Q8. a) (23)

Pattern 7 = (7×3) +2 = 23

b) (47)

$143 - 2 = 141$

Pattern no. $= 141 \div 3 = 47$

3

Q9.a) (660 km)
$6 \times 110 = 660$
b) (115km/h)
Distance travel by y= 660 – 200 = 460
Time time taken by y = 4hr
Avg. speed = 460 ÷ 4 = 115

Q10. (3)
82.6 × 9 =743.4
1000.8 – 743.4 = 257.4
257.4 ÷ 85.8 = 3

Q11. a) ($6528)
3264 × 2 = 6528
b) $(\frac{1}{18})$
Drink+Souvenier = $1 - \frac{1}{3} - \frac{1}{2} = \frac{1}{6}$
Souvenir = $\frac{1}{6} \div 3 = \frac{1}{18}$

Q12. (15 cm)
Total volume of water = $30 \times 2.18 = 65.4 \ \ell = 65\ 400 m\ell$
Volume of big container = $53 \times 20 \times 60 = 63\ 600\ m\ell$
Volume in small container= 65 400 – 63 600 = 1800
Base area = 1800 ÷ 8 = 225
Length = $\sqrt{225}$ = 15

Q13. a) $(\frac{7}{24})$

S:P	T		R:Q	T
7:5	12		1:2	12
			4:8	

S+P = Q+R
S: 7u
Total : 24 u

b) (456cm²)
7u –4u = 3u
3u=57
Total = 24u = 57 ×8 = 456

Q14. (480)
Boy that wear spectacles $= \frac{5}{6} \times \frac{3}{4} = \frac{5}{8}$

Boy that doesn't wear spectacles $= 1 - \frac{5}{8} = \frac{3}{8}$

$\frac{4}{5}$ of school $= \frac{5}{8}$ of school + 105

$105 = \frac{4}{5} - \frac{5}{8} = \frac{7}{40}$ of pupils

Total no. of pupils who wears spectacles $= \frac{4}{5}$ of school $= \frac{32}{40}$ of school

$$=105 \times \frac{32}{7} = 480$$

Q15. a) ($3808)
Salary (May) : 100%   Salary (June): 85%

Salary (June)= $896 \times \frac{85}{20} = 3808$

   b) ($134.40)
Salary given to mother in june + 134.4 ÷5 = 761.60
896 – 761.60 = 134.40

Q16. a) ($ 26)
28 ÷ 7 = 4
4 × 5 = 20
20 × 1.3 = 26

b) (112)
Cost for 28 cupcakes (Plan A)= 21 × 1.3 = 27.3
Money saved = 27.3 – 26 = 1.3
5.2 ÷ 1.3 = 4
4 × 28 = 112)

Q17.a) (324 cm)
Circumference=3.14×10 = 31.4
Total distance= 5 + 5 + (31.4×10) = 324
b) ($10.76cm^2$)
Area of rectangle = 10 × 5 = 50
Unshaded area = 0.5 × 3.14 × 5 ×5 = 39.24
Shaded area = 50 – 39.24 = 10.76

THE END

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