METHODIST GIRLS' SCHOOL (PRIMARY)

Founded in 1887

PRELIMINARY EXAMINATION 2018
PRIMARY 6
MATHEMATICS

PAPER 1
(BOOKLET A)

Total Time for Booklets A and B : 1 hour

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.
The use of calculators is not allowed.

Name: _____ ( )

Class: Primary 6._____

Date: 2 August 2018

Parent's Signature : _____

This booklet consists of 8 printed pages including this page

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

(20 marks)

---

1. Round 538 527 to the nearest ten thousands.

   (1) 530 000

   (2) 538 000

   (3) 539 000

   (4) 540 000

2. The mass of a sack of potatoes is 5.45 kg. Find the mass of 30 such sacks of potatoes.

   (1) 16.35 kg

   (2) 54.5 kg

   (3) 163.5 kg

   (4) 545 kg

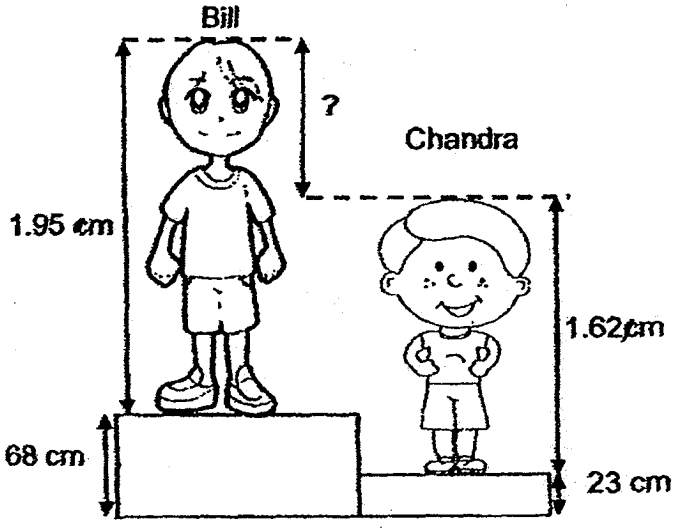
3. Bill and Chandra are standing on the podium. What is the distance between the top of Bill's head and the top of Chandra's head?

   (1) 33 cm

   (2) 45 cm

   (3) 78 cm

   (4) 91 cm



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4. The table shows the total number of cars sold by Mr Tan, a car dealer, from January to April.

Month	No. of cars sold
Jan	0
Feb	17
Mar	29
Apr	62

What was his average number of cars sold per month?

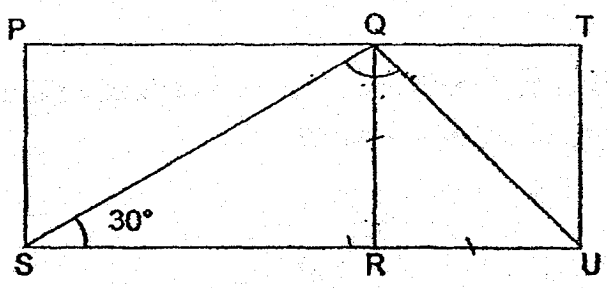
(1) 23

(2) 27

(3) 36

(4) 108

5. In the figure below, PQRS is a rectangle and QTUR is a square. PQT and SRU are straight lines. Find ∠SQU.



(1) 45°

(2) 60°

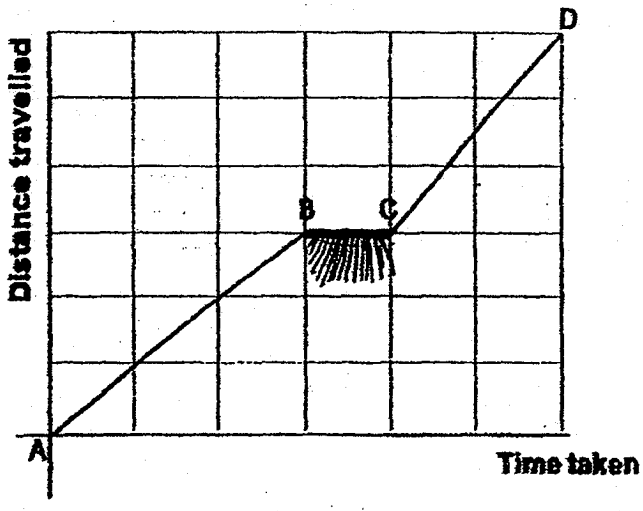
(3) 90°

(4) 105°

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6. The distance-time graph shows the journey taken by Mr Lim from Town A to Town D. Which statement describes the graph?



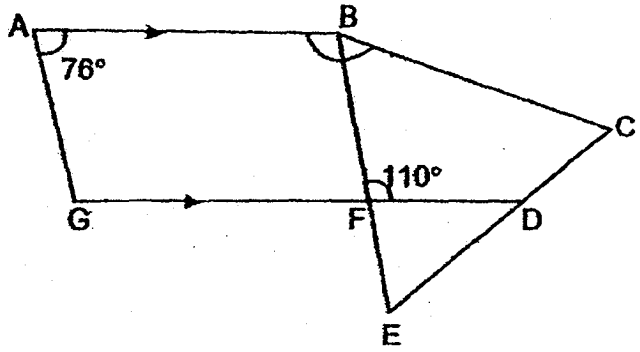
(1) He travelled at the same speed from Point B to Point C.

(2) He travelled at the same speed from Point A to Point D.

(3) His speed from Point A to Point B is faster than his speed from Point C to Point D.

(4) His speed from Point A to Point B is slower than his speed from Point C to Point D.

7. In the diagram below, ABFG is a trapezium and BCE is an equilateral triangle. AB // GF and GFD is a straight line. Find ∠ABC.



(1) 104°

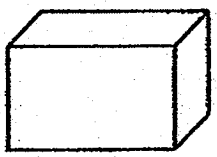
(2) 164°

(3) 170°

(4) 186°

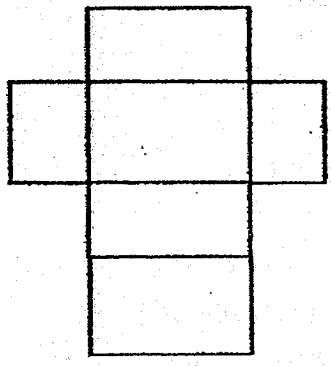
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8.

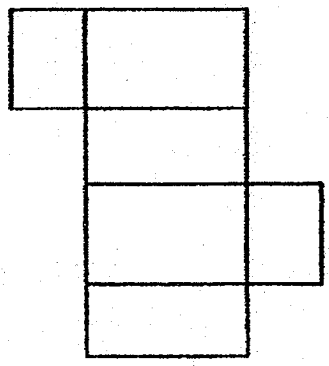


Which one of these figures could **not** be a net of the cuboid?

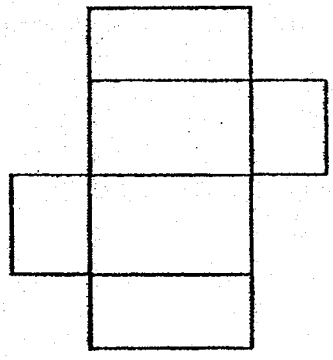
(1)



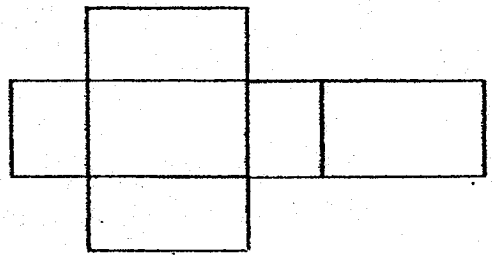
(2)



(3)



(4)



9. Simplify $9y + 7 - 5y + y - 3 + 2$.

(1) $3y + 2$

(2) $3y + 6$

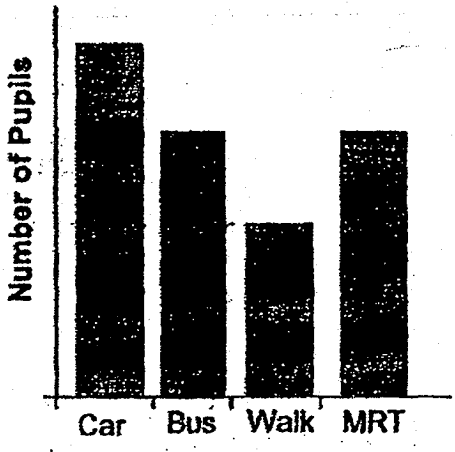
(3) $5y + 2$

(4) $5y + 6$

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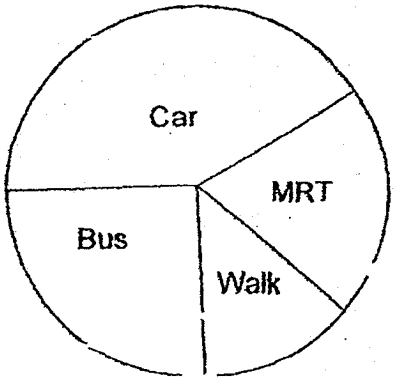
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10. The bar graph shows how pupils of Champion Primary School went to school on a certain day.

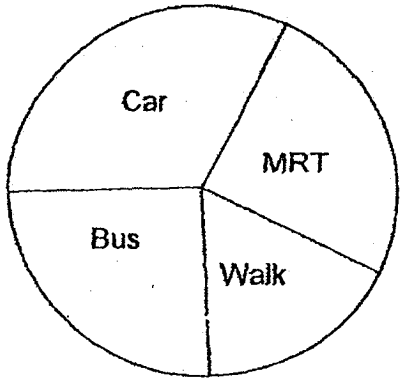


Which pie chart represents the information given in the bar graph?

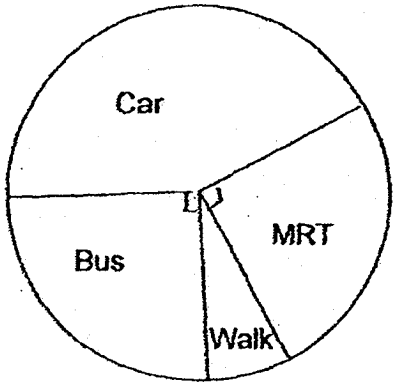
(1)



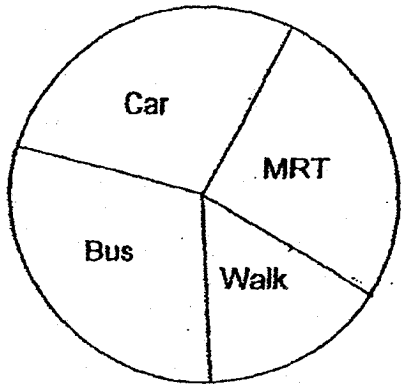
(2)



(3)



(4)



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11. Mr Tan bought a total of 300 red and black beads in separate boxes. All the boxes of red beads had the same number of beads. All the boxes of black beads had 70 beads in each box. Which one of the following could <u>not</u> be the number of red beads in a box?

(1) 30

(2) 32

(3) 36

(4) 45

12. In a box, $\frac{4}{9}$ of the fruits are apples and the rest are pears. $\frac{2}{3}$ of the apples are red and the rest are green. There are 24 green apples. How many pears are there in the box?

(1) 40

(2) 72

(3) 90

(4) 162

13. Lee Min donated 30% of her savings and still had $210 of her savings left. How much money did she donate?

(1) $63

(2) $90

(3) $120

(4) $147

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14. The letter x represents a number between 4 and 6. Which of the following algebraic expression has the largest value?

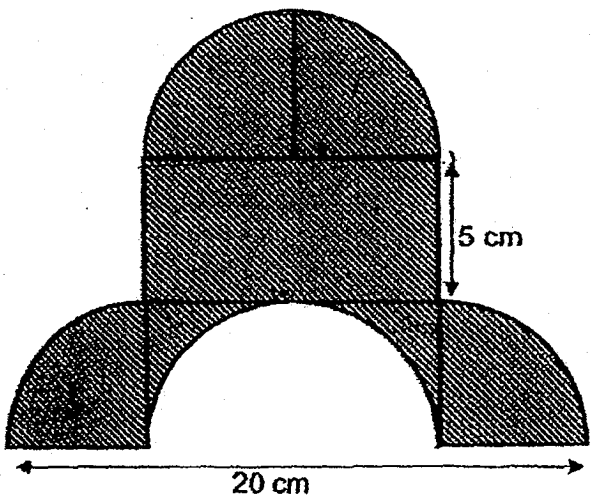
(1) $\frac{x+6}{x}$

(2) $\frac{x+6}{6}$

(3) $\frac{6-x}{x}$

(4) $\frac{6-x}{6}$

15.



The figure above is formed by of 4 identical quarter circles, 1 semicircle and 1 rectangle. Find the area of the shaded figure.

Leave your answer in terms of π.

(1) $(12\frac{1}{2}\pi + 100)$ cm²

(2) $(25\pi + 50)$ cm²

(3) $(25\pi + 150)$ cm²

(4) $(50\pi + 50)$ cm²

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METHODIST GIRLS' SCHOOL (PRIMARY)

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PRELIMINARY EXAMINATION 2018
PRIMARY 6
MATHEMATICS

PAPER 1
(BOOKLET B)

Total Time for Booklets A and B : 1 hour

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.
The use of calculators is not allowed.

Name: _____ ( )

Class: Primary 6._____

Date: 2 August 2018

Paper 1 Booklet A	**/ 20**
Paper 1 Booklet B	**/ 25**
Paper 2	**/ 55**
TOTAL	**/ 100**

Parent's Signature : _____

This booklet consists of 9 printed pages including this page

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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)

Do not write in this space

16. Find the value of 15.3 – 9.04.

Ans : _____

17. Find the value of 147 × 80.

Ans : _____

18. a : b = 7 : 4 and b : c = 6 : 7 What is the ratio of a : c ?
Give your answer in the simplest form.

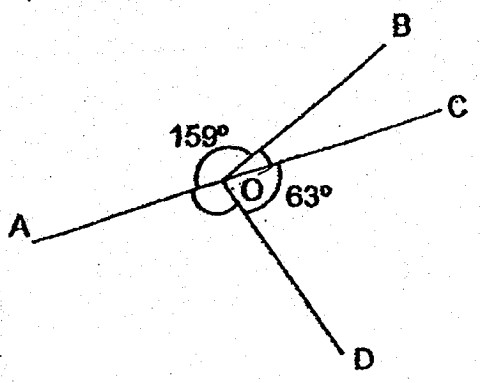
Ans : _____

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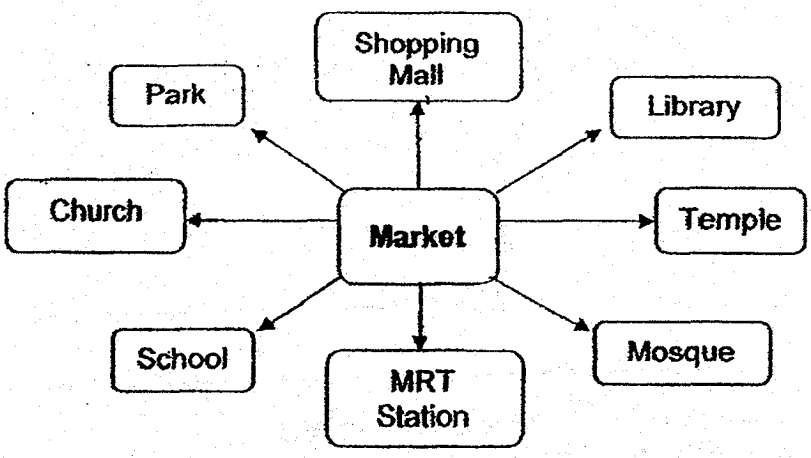
19. In the figure below, AOC is a straight line. ∠AOB = 159° and ∠COD = 63°. What is the sum of ∠AOD and ∠BOC ?

Do not write in this space



Ans : _____ °

20. Mrs Lim was at the market. After she turned 225° anti-clockwise, she is now facing the park. Where was she facing at first?



Ans : _____

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Questions **20** 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.

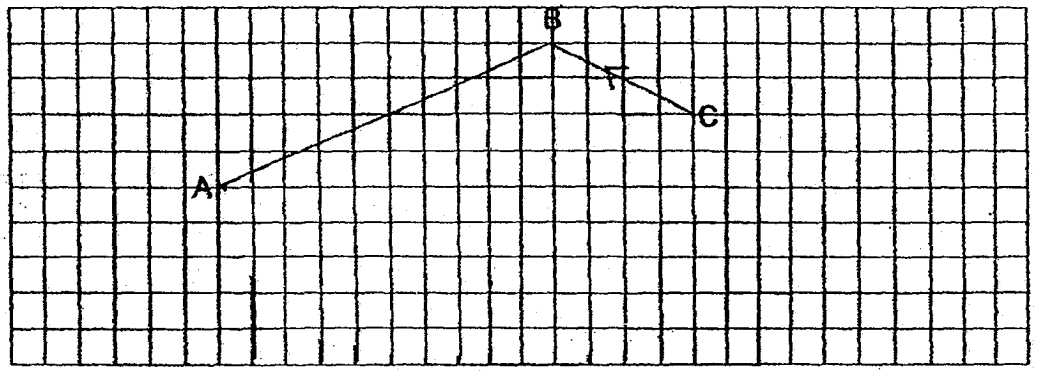
(20 marks)

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21. Eileen prepared $\frac{6}{7}$ litres of apple juice for some friends. She poured the juice into cups of $\frac{1}{5}$ litres each. How much apple juice was left? Give your answer as a fraction in the simplest form.

Ans : _____ *l*

22. AB and BC are two sides of a trapezium. BC//AD and the length of BC and AD are in the ratio of 2:3. Complete the trapezium by drawing the other two sides in the square grid and label it. Measure the length of CD.

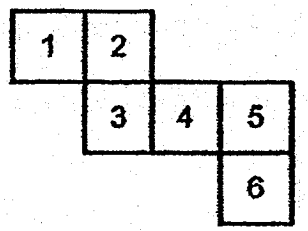


Ans: CD = _____ cm

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23. The diagram shows the net of a cube. The cube is placed with Face "2" at the bottom of the cube. Which face is at the top of the cube?

Do not write in this space



Ans : Face _____

24. Janette took 15 minutes to cycle from her house to the library. She travelled 850 m. Find Janette's speed in km/h.

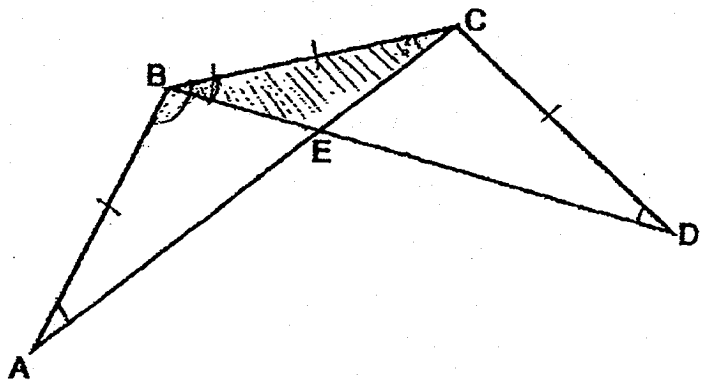
Ans : _____ km/h

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25. In the figure below, AEC and BED are straight lines. AB = BC = CD.

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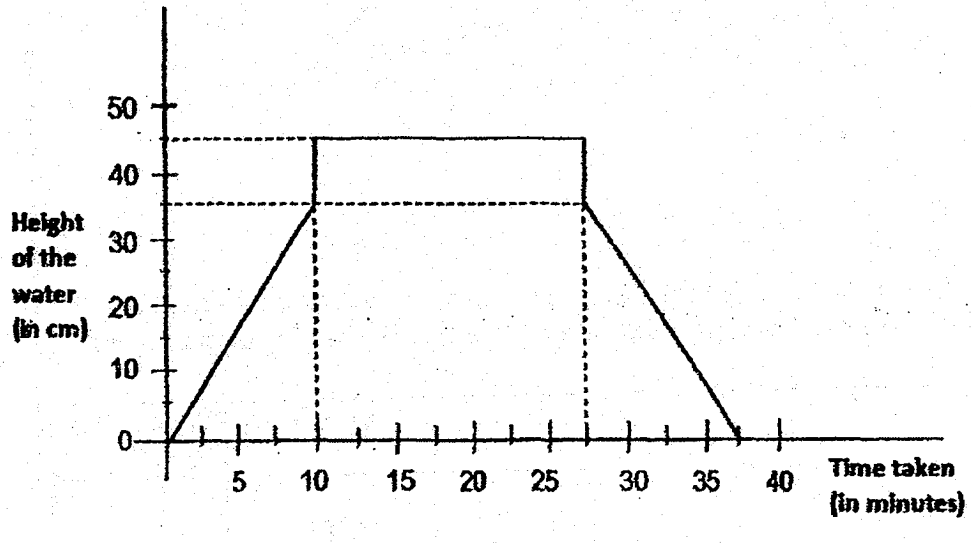
Each statement below is true, false or not possible to tell from the information given. For each statement, put a tick (✓) in the correct column.

Statement	True	False	Impossible to Tell
Area of Figure ABCDE = Area of △ABC + Area of △BCD - Area of △BCE			
∠BAC = ∠CDB			

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26. The graph below shows the height of water in a bathtub at different times of Sally's bathing activity. The height of the bathtub was 50 cm. She switched on the tap to fill the bathtub. She switched off the tap and stepped into the tub. After her bath, she stepped out of the bathtub and drained the water.

Do not write in this space



(a) What fraction of the height of the bathtub was filled with water when Sally switched off the tap? Give you answer in the simplest form.

(b) How long did Sally stay in the bathtub?

Ans : (a)_____

(b)_____ min

(Go on to the next page)

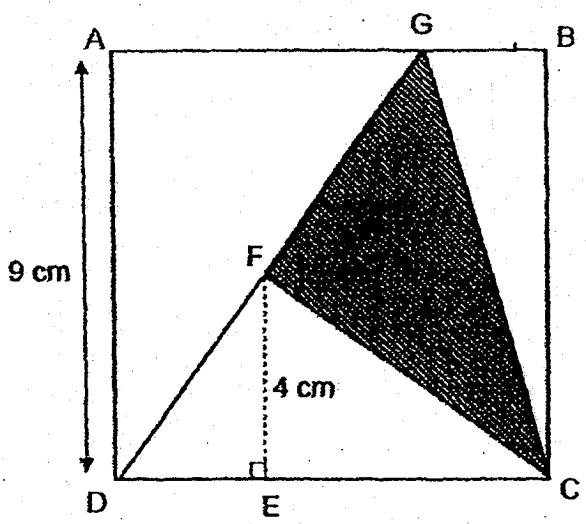
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27. The pupils in a room are divided equally into Group A and Group B. The ratio of the number of boys to the number of girls in Group A is 2 : 3 and in Group B is 1 : 2. What is the ratio of the total number of girls to the total number of pupils in the room?

Do not write in this space

Ans : _____

28. The figure below is formed by a square ABCD and a triangle DGC. AD = 9 cm, EF = 4 cm and FC is a straight line. Find the area of the shaded part.

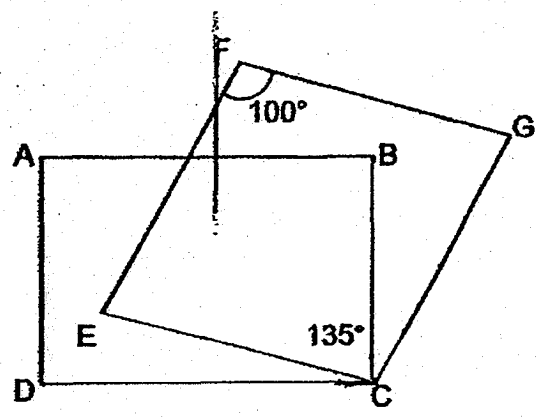


Ans : _____ cm^2

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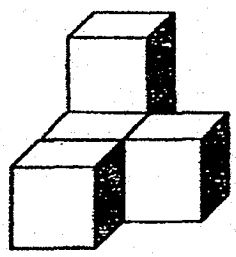
29. In the figure, ABCD is a rectangle and CEFG is a rhombus. ∠EFG = 100° and ∠DCG = 135°. Find ∠BCE.

Do not write in this space



Ans: _____ °

30. The solid below is made up of 5 identical cubes. The solid has a volume of 40 cm^3. How many more cubes have to be added to the solid to form a bigger cube with a volume of 216 cm^3.



Ans : _____

End of Paper

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METHODIST GIRLS' SCHOOL (PRIMARY)

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PRELIMINARY EXAMINATION 2018
PRIMARY 6
MATHEMATICS

PAPER 2

Duration: 1h 30 min

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.
The use of an approved calculator is expected, where appropriate.

Name: _____ ( )

Class: Primary 6._____

Date: 2 Aug 2018

Parent's Signature : _____

55

This booklet consists of 13 printed pages including this page.

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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 answers in the units stated. (10 marks)

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1 The table below shows the number of television sets owned per flat in a housing estate.

Number of television sets owned per flat	1	2	3	4
Number of flats	135	540	297	108

(a) How many television sets are owned by the flats in the housing estate?

(b) What percentage of flats owned at least two television sets?

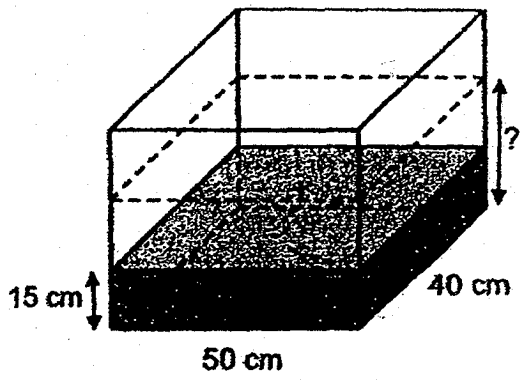
Ans : (a) _____ [1]

(b) _____ [1]

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2 A rectangular tank 50 cm long and 40 cm wide was filled partially with water. 12 litres of water were poured out of the tank. The height of the water became 15 cm. What was the height of the water at first?

Do not write in this space



Ans : _____ cm

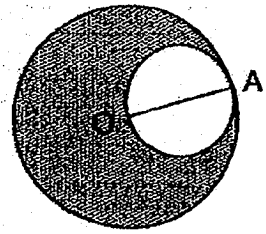
3 Nazri had some marbles. He gave $\frac{2}{5}$ of them to his classmates and $\frac{1}{3}$ of the remainder to his brother. He then had 38 marbles left. How many marbles did he give to his brother?

Ans : _____

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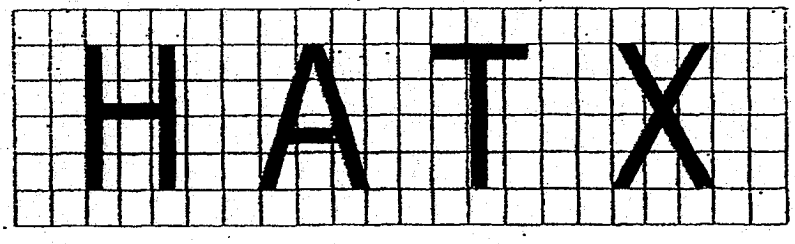
4 O is the centre of the large circle and AO is the diameter of the small circle. The diameter of the large circle is 2 times the diameter of the small circle. The circumferences of the big and small circles meet each other at point A. The perimeter of the shaded figure is 30π cm, what is the diameter of the small circle?

Do not write in this space



Ans : _____ cm

5 Look at the letters in the square grid below.



Write each letter once in the table below based on the description for each row or column.

Description	Have 1 line of symmetry	Have 2 lines of symmetry
Have perpendicular lines		
Have no perpendicular lines		

[2]

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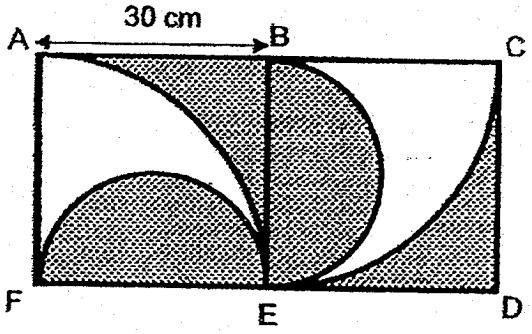
For Questions **6** to **17**, show your working clearly and write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part-question. **(45 marks)**

Do not write in this space

6 Siti bought n notebooks and 3 times as many files. She paid a total of \$160 for the notebooks and files. The notebooks cost \$25 more than the files. If $n = 5$, what was the cost of each file?

Ans: _____ [3]

7 The shaded figure below is formed by semicircles, quarter circles and squares. ABEF is a square. What is the area of the shaded region? ($\pi = 3.14$)



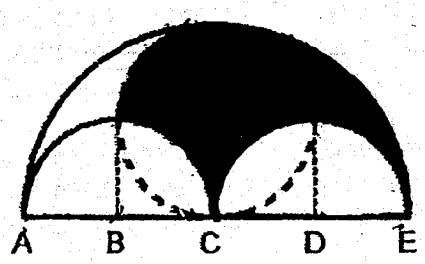
Ans: _____ [3]

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8 The figure shows three semicircles and a circle. AB = BC = CD = DE = 5 cm, find the perimeter of the shaded part. Give your answer in 2 decimal places.

Do not write in this space



Ans: _____ [3]

9 Every time Mei Ling saves 60 cents, her mother puts another 30 cents into her savings. When Mei Ling had $25.20 in her savings, how much of it had been put in by her mother?

Ans: _____. [3]

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10 Peter set off from Town A towards Town B at 7.00 a.m. at a constant speed of 70 km/h. John set off from Town A towards Town B at 8.30 a.m. at a constant speed of 90 km/h. At what time did John manage to catch up with Peter on the road?

Do not write in this space

Ans: _____ [3]

11 A group of children shared 533 stamps among themselves. $\frac{1}{2}$ of them received 4 stamps each, $\frac{5}{12}$ of them received 3 stamps each and the rest received 2 stamps each. How many children were there?

Ans: _____ [4]

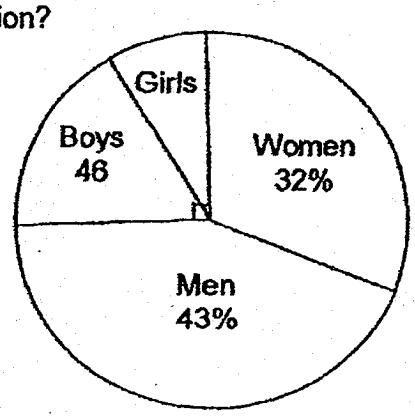
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12 The pie chart below shows the percentage of people who visited an exhibition. 25% of the people were children. There were 46 boys. There were 88 more women than girls.

Do not write in this space

(a) How many men were there?

(b) How many people visited the exhibition?



Ans : (a) _____ [3]

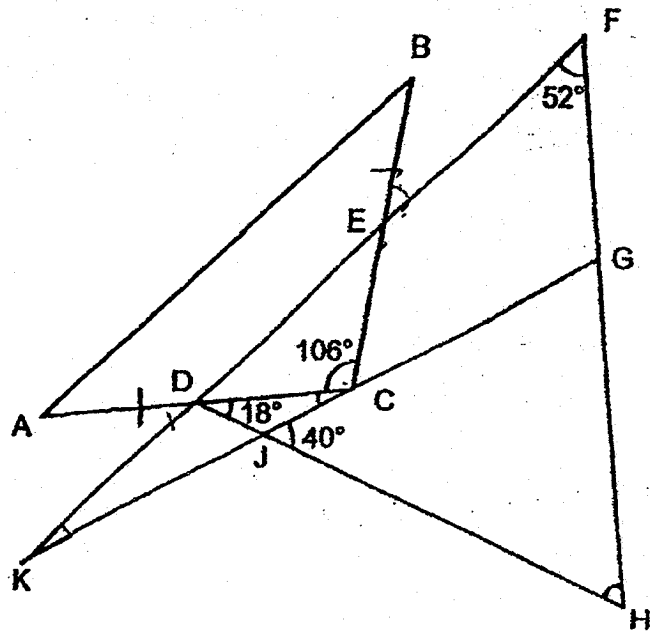
(b) _____ [1]

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13 The figure below shows three overlapping triangles. ABC is an isosceles triangle and AB // FK. $\angle ACB = 106°$, $\angle CDH = 18°$, $\angle KFH = 52°$ and $\angle GJH = 40°$ Find

(a) $\angle FHD$.

(b) $\angle FKG$.



Do not write in this space

Ans : (a) _____ [3]

(b) _____ [1]

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14 The total height of 3 men was 5.01 m. A fourth man joined the group and the average height decreased by 0.08 m. A fifth man joined the group and the average height then increased by 0.06 m.

Do not write in this space

(a) What was the average height of the first three men?

(b) What was the height of the fifth man?

Ans : (a) _____ [1]

(b) _____ [3]

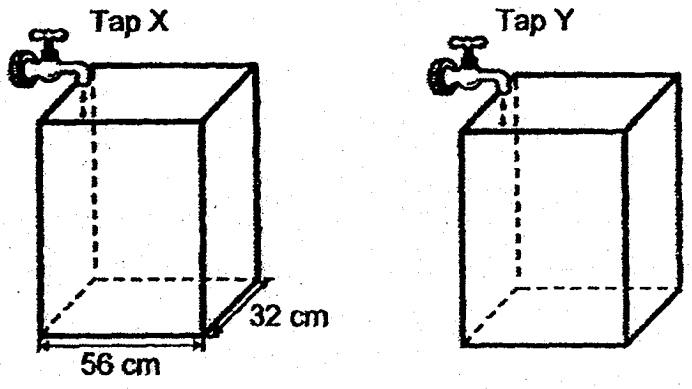
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15 The figure below shows 2 identical tanks. Water from Tap X flowed at a rate of 2.8 litres per minute while water from Tap Y flowed at a rate of 3.2 litres per minute. Tap X was turned on at 10 a.m. Tap Y was turned on 2 minutes later. The taps were turned off at the same time when the water level in the 2 tanks reached the same height.

Do not write in this space

(a) At what time was the water level the same in both tanks?

(b) What was the height of the water level in both tanks in the end?



Ans : (a) _____ [3]

(b) _____ [2]

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16 The figures which are made up of shaded and unshaded squares follow a pattern as shown below.

Do not write in this space



Figure 1

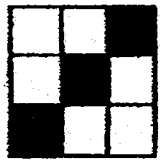


Figure 2

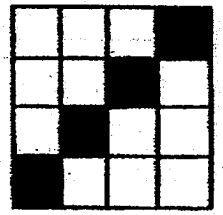


Figure 3

(a) Find the number of shaded and unshaded squares in Figure 5. [1]

Figure Number	Number of shaded squares	Number of unshaded squares
1	2	2
2	3	6
3	4	12
4	5	20
5	i) _____	ii) _____

(b) In which figure is there a total of 256 squares?

(c) A figure in the pattern has a total of 529 shaded and unshaded squares. What is the number of shaded squares in the figure?

Ans: (b) _____ [1]

(c) _____ [2]

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17

Computer sale
1st computer at 20% discount
2nd computer at 30% discount*
*Price of 2nd computer should be equal or lower than price of 1st

Do not write in this space

Mr Chan and Mr Tan each bought two computers during the Great Singapore Sale.

(a) Mr Chan's computers were priced at $1250 and $2370, before 7% GST. How much did he pay in total, including GST?

(b) Mr Tan paid a total of $3445.40, including 7% GST. He paid $449.40 more for the 1st computer than for the 2nd computer. What was the price of the 1st computer before discount?

Ans: (a) _____ [2]

Ans: (b) _____ [3]

END OF PAPER

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ANSWER KEY

YEAR : 2018
LEVEL : PRIMARY 6
SCHOOL : METHODIST GIRLS' SCHOOL (PRIMARY)
SUBJECT : MATHEMATICS
TERM : PRELIMINARY EXAM

PAPER 1 BOOKLET A

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

PAPER 1 BOOKLET B

Q16) 6.26

Q17) 11 760

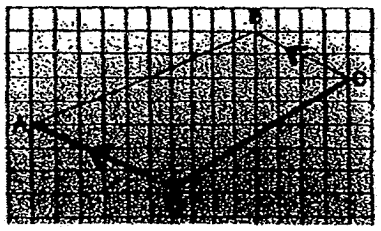
Q18) 3 : 2

Q19) 138°

Q20) MRT Station

Q21) $\frac{2}{35}$

Q22)



CD = 4.6 cm

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Q23) Face 6

Q24) 3.4 km/h

Q25) Area of Figure ABCDE: True
<BAC = <CDB : Impossible to tell

Q26a) $\frac{7}{10}$

Q26b) 17.5 min

Q27) 19 : 30

Q28) 22.5 cm^2

Q29) 55°

Q30) 22

PAPER 2

Q1a) 540 x 2 = 1080
297 x 3 = 891
108 x 4 = 432
1080 + 891 + 432 + 135 = 2538

Q1b) 540 + 297 + 108 = 945
945 + 135 = 1080

$\frac{945}{1080}$ **x 100 = 87.5%**

Q2) 12 litres = 12 000cm^3
12 000cm^3 ÷ (50cm x 40cm) = 6cm
15cm + 6cm = 21cm

Q3) $1 - \frac{2}{5} = \frac{3}{5}$

$\frac{3}{5}$ **= 3 units**

$\frac{1}{3}$ **of 3 units = 1 unit**

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2 units = 38

1 unit = 38 ÷ 2
= 19

Q4) Perimeter of small circle = π d
Perimeter of big circle = π + 2d = 2 π d
Total perimeter of figure = π d + 2 π d
= 3 π d – 30π

d = 10cm

Q5)

Description	Have 1 line of symmetry	Have 2 lines of symmetry
Have perpendicular lines	T	H
Have no perpendicular lines	A	X

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Solutions to Word Problems

Methodist 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. Total number of notebooks & files bought = n + 3n = 4n

Excess cost of notebooks = $25

Cost of 4n files = (160 – 25) ÷ 2 = $67.5

Number of notebooks and files bought = 3n = 3 x 5 = 15

Cost of each file = 67.5 ÷ 15 = $4.50

Ans: $4.50

---

7. Radius of semi-circle = 15 cm

Area of 2 semi-circles = π x 15 x 15 = 225π cm^2

Area of 2 quadrants = π x 30 x 30 x $\frac{1}{2}$ = 450π cm^2

Area of shaded crescents = 60 x 30 - 450π = 1800 - 450π cm^2

Area of shaded region = 225π + 1800 - 450π = 1800 – 225π = 1093.5 cm^2

Ans: 1093.5 cm^2

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8. Diameter of small circle = 10 cm

Diameter of large circle = 20 cm

Perimeter of 4 quadrants of small circle = π x 10 = 10 π cm

Perimeter of 1 quadrants of large circle = π x 20 x $\frac{1}{4}$ = 5 π cm

Perimeter of shaded part = 10 π + 5 π = 15 x 3.142 = 47.13 cm

Ans: 47.13 cm

---

9. Ratio of Mei Ling's savings to her mother's contribution = 60 : 30 → 2 : 1

→ 2u : 1u

Total savings = 1u + 2u = 25.20

3u = 25.20

u = 25.20 ÷ 3 = 8.40

Amount her mother put in = 1u = 1 x 8.40 = $8.40

Ans: $8.40

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10. Let u = time in hours from 8.30 am

Distance travelled by Peter in 1.5 hour = 1.5 x 70 = 105 km

Distance travelled by Peter = 70 x u = 70u

Distance travelled by John = 90u – 105

(8:30 is1.5h after 7am)

When they met,
90u – 105 = 70u
20u = 105
u = 105 ÷ 20 = 5.25 hr = 5 hr 15 min after 8.30 am
= 13.45 hr = 1.45 pm

Ans: 1.45 pm

---

11. Let number of children = 12u

Number of stamps of $\frac{1}{2}$ of them = $\frac{1}{2}$ x 12u x 4 = 24u

Number of stamps of $\frac{5}{12}$ of them = $\frac{5}{12}$ x 12u x 3 = 15u

Number of remaining children = 12u – 6u – 5u = u

Number of stamps of remaining children = u x 2 = 2u

Total number of stamps = 24u + 15u + 2u = 41u = 533

u = 533 ÷ 41 = 13

Number of children = 12 x 13 = 156

Ans: 156 children

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12. a)

Let total number of people who visited exhibition = 100u

Number of boys + number of girls + number of women = 25u + 32u = 57u

46 + 2 x number of girls + 88 = 57u

2 x number of girls = 57u – 134

2 x (25u – 46) = 57u -134 (Number of girls = 25% - 46)

50u – 92 = 57u – 134

7u = 42

u = 6

Number of men = 0.43 x 100u = 43u = 43 x 6 = 258

b)

Total number of people = 100u = 100 x 6 = 600

Ans: (a) 258
(b) 600

---

13. a)

∠EDC = (180 – 106) ÷ 2 = 37° (CDE is isosceles)

∠FDH = 37 + 18 = 55°

∠FHD = 180 – 52 – 55 = 73°

b)

∠HGJ = 180 – 73 – 40 = 67°

∠FKG = 67 – 52 = 15°

Ans: (a) 73°

(b) 15°

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14. a)

Average height of first 3 men = 5.01 ÷ 3 = 1.67 m

b)

New average height after 4^{th} man joined = 1.67 – 0.08 = 1.59m

Total decrease in height = 0.08 x 3 = 0.24m

Height of 4^{th} man = 1.59 – 0.24 = 1.35 m

New average height after 5^{th} man joined = 1.59 + 0.06 = 1.65 m

Total increase in height = 4 x 0.06 = 0.24 m

Height of 5^{th} man = 1.65 – 0.24 = 1.89m

Ans: (a) 1.67 m

(b) 1.89m

---

15. a)

Let t = time in minutes after Tap X was turned on at 10 am.

Volume from Tap X = 2.8 x t = 2.8t litres

Volume from Tap Y = 3.2 x (t – 2) = 3.2t – 6.4

Volume from Tap Y = Volume from Tap X

3.2t – 6.4 = 2.8t

3.2t – 2.8t = 6.4

0.4t = 6.4

t = 6.4 ÷ 0.4 = 16 min after 10am = 10.16 am

b)

Volume of either tanks = 2.8 x 16 = 44.8 litres

Area of base = 56 x 32 = 1792 cm^2

Height of both tanks = 44800 ÷ 1792 = 25 cm

Ans: (a) 10.16 am

(b) 25 cm

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16. a)

Let Figure Number = n

Number of shaded square in Figure 5 = n + 1 = 5 + 1 = 6

Number of unshaded squares in Figure 5 = (n+1)x (n+1) – (n+1)= n x (n+1) = 30

b)

Total number of squares = (n+1) x (n+1) = 256 = 16 x 16

n + 1 = 16

n = 15, Figure 15 has 256 squares

c)

(n+1) x (n+1) = 529 = 23 x 23

n +1 = 23

n = 22

Number of shade square in Figure 22 = n + 1 = 22 + 1 = 23

Ans: (a) 6, 30

(b) Figure 15

(c) 23

---

17. a)

Discounted price before GST = 0.8 x 2370 + 0.7 x 1250 =1896 + 875 = $2771

Price including GST = 1.07 x 2771 = $2964.97

b)

Amount he paid for 2nd computer = (3445.40 – 449.40) ÷ 2 = $1498

Payment for 1st computer = 1498 + 449.40 = $1947.40

Price of 1st computer before GST = 1947.40 ÷ 1.07 = $1820

Price of 1st computer before discount = 1820 ÷ 0.8 = $2275

Ans: (a) $2964.97

(b) $2275

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