De La Salle School | St. Anthony's Primary | St. Joseph's Institution Junior | St. Stephen's School

CHRISTIAN BROTHERS' SCHOOLS

PRELIMINARY EXAMINATION

2016

PRIMARY 6

MATHEMATICS

PAPER 1

(BOOKLET A)

NAME: _____ ( )

CLASS: _____

15 Questions **Total Time for Booklets A and B : 50 min**

20 Marks

Instructions to candidates

- Do not open this booklet until you are told to do so.
- Follow all instructions given at the beginning of each section carefully.
- An Optical Answer Sheet is provided for answers to Questions 1 to 15.
- Do not waste time. If a question is difficult, go on to the next one.
- Answer all questions.
- You are not allowed to use a calculator.

This booklet consists of 7 printed pages.

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

(20 marks)

---

1. Four million, six hundred and four thousand and ten is _____.

   (1) 404 610
   (2) 464 010
   (3) 4 004 610
   (4) 4 604 010

2. Round off 652 359 to the nearest thousand.

   (1) 650 000
   (2) 652 000
   (3) 653 000
   (4) 660 000

3. Express 3.25 as a fraction.

   (1) $3\frac{1}{20}$
   (2) $3\frac{1}{40}$
   (3) $3\frac{2}{5}$
   (4) $3\frac{1}{4}$

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4. The table below shows the time taken by 4 swimmers in a competition. Who is the fastest swimmer?

Swimmers	Andy	Belle	Chris	Don
Time taken (min)	3.2	3.02	3.21	3.1

(1) Andy
(2) Belle
(3) Chris
(4) Don

5. A cuboid has a volume of 24 cm^3.
What is its height if its base measures 2 cm by 4 cm?

(1) 6 cm
(2) 8 cm
(3) 3 cm
(4) 4 cm

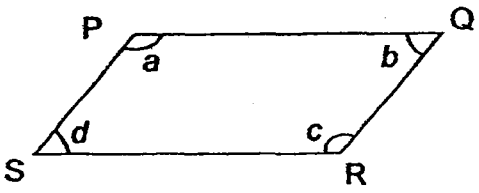
6. The table below shows the points which Tobias had scored in 5 games.
Find his average score for the 5 games.

Game 1	Game 2	Game 3	Game 4	Game 5
10	7	19	15	9

(1) 12
(2) 19
(3) 30
(4) 60

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7. PQRS is a parallelogram. Which of the following is true?



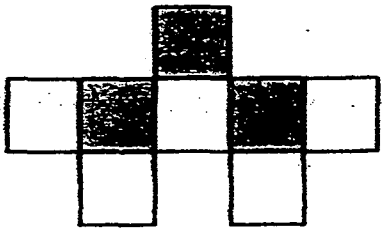
(1) $\angle a = \angle d$

(2) $\angle c = \angle d$

(3) $\angle a + \angle c = 180^\circ$

(4) $\angle c + \angle d = 180^\circ$

8. The figure below is made up of identical squares. Find the ratio of the number of shaded squares to the total number of squares.



(1) 5 : 3

(2) 3 : 5

(3) 3 : 8

(4) 8 : 3

9. Given that $w = 4$, find the value of $7w + 5 - 4w + 2$.

(1) 15

(2) 19

(3) 37

(4) 51

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10. Jonas cycled at an average speed of 24 km/h. How far did he travel after cycling for 120 minutes?

(1) 5 km
(2) 12 km
(3) 48 km
(4) 72 km

11. Alfred had $\frac{7}{8}$ kg of flour. He packed them into smaller packets of $\frac{1}{4}$ kg each. What is the mass of the remaining flour?

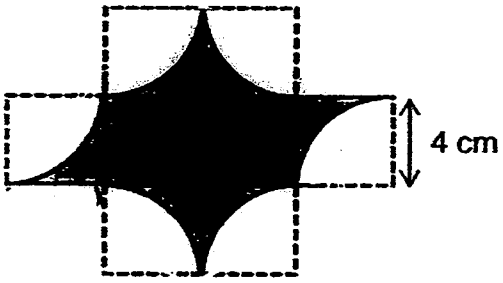
(1) $\frac{1}{8}$
(2) $\frac{5}{8}$
(3) $\frac{7}{16}$
(4) $\frac{7}{32}$

12. Sally started reading her bedtime story book at 11.50 p.m.
She took 35 minutes to read it. At what time did she finish reading?

(1) 11.15 a.m.
(2) 11.15 p.m.
(3) 12.25 a.m.
(4) 12.25 p.m.

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13. The figure below is made up of 6 identical quadrants with radius 4 cm.
What is the perimeter of the shaded part of the figure?
(Express your answer in terms of π .)



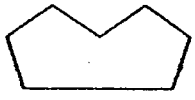
(1) $(6\pi + 8)$ cm

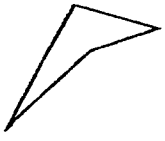
(2) 12π cm

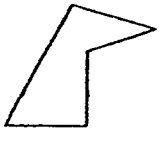
(3) $(12\pi + 8)$ cm

(4) 24π cm

14. Which one of the following shapes can be tessellated?

(1) 

(2) 

(3) 

(4) 

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15. Mdm Rani sold 120 muffins in the morning and 40% of the remaining muffins in the afternoon. The number of muffins left in the end was $\frac{1}{3}$ of what she had at first. How many muffins were sold in the afternoon?

(1) 40
(2) 60
(3) 150
(4) 270

END OF BOOKLET A

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Questions 16 to 25 carry 1 mark each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated.

(10 marks)

16. **Find the value of $20 - 2 \times (5 + 4) \div 6$.**

Ans: _____

17. Find the value of $12.08 - 1.7$.

Ans: _____

18. Express $\frac{36}{8}$ as a mixed number in its simplest form.

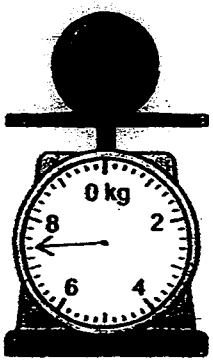
Ans: _____

19. Find the value of $\frac{4}{7} \div \frac{4}{5}$.

Ans: _____

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20. What is the mass of the ball on the weighing scale?



Ans: _____ kg _____ g

---

21. What is the area of a semicircle with a radius of 4 cm? (Take $\pi = 3.14$)

Ans: _____ cm^2

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22. 100 m of wire costs 35 cents.
How much does 1 km of wire cost?

Ans: $ _____

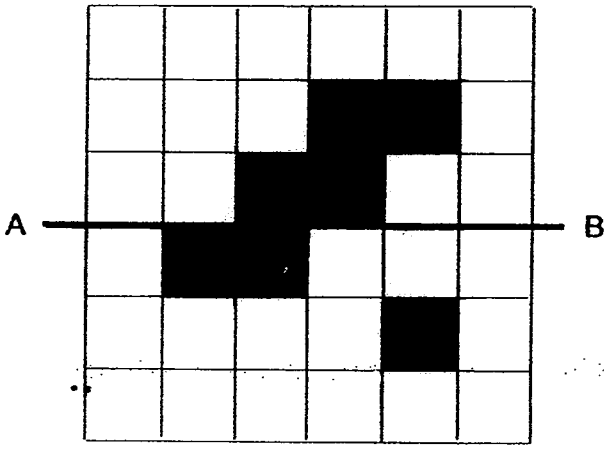
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23. The average mass of 4 boys is 27 kg. What is their total mass?

Ans: _____ kg

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24. The figure below is made up of squares. Shade the least number of squares to form a symmetric figure with AB as the line of symmetry.



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25. There are $\frac{3}{7}$ as many boys as girls in a club. What is the ratio of the number of girls to the number of children in the club?

Ans: _____

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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.

(10 marks)

26. Jane has a sum of money. If she buys 5 similar T-shirts, she will be short of $14.50. If she buys 3 such T-shirts, she will have $2.50 left.

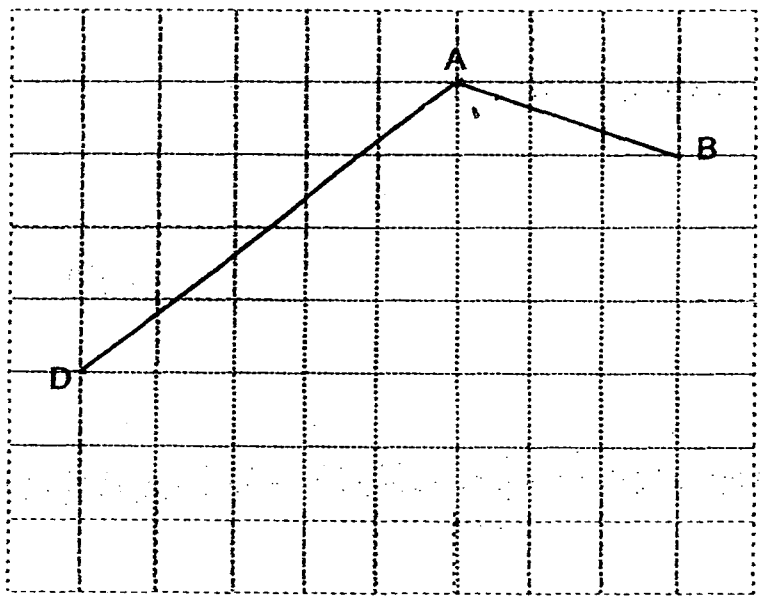
How much do 8 such T-shirts cost?

Ans: $ _____

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

Complete the drawing of the parallelogram ABCD and label point C.

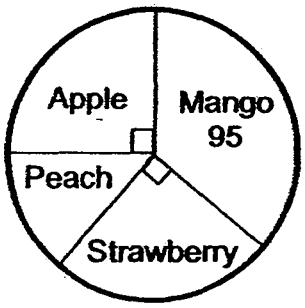
Measure the length of CD.



Ans: _____ cm

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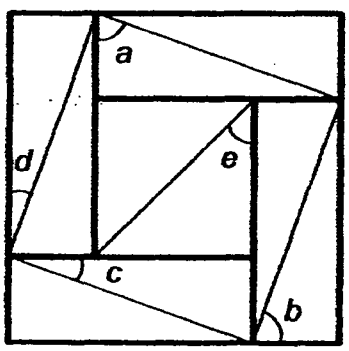
28. The pie chart below shows the number of fruit tarts of each flavour sold at a bakery. 150 apple tarts and strawberry tarts were sold altogether. What percentage of the tarts sold were peach tarts?



Ans: _____ %

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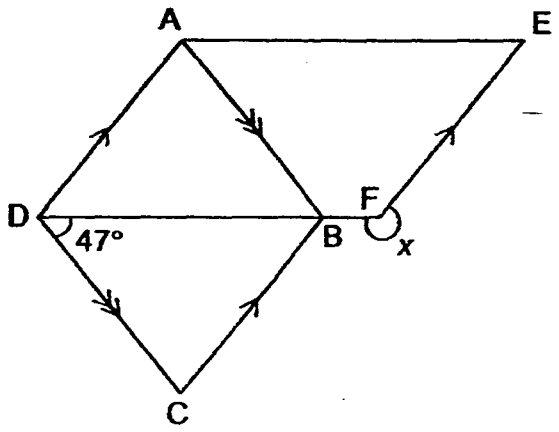
29. The figure below is made up of 4 identical rectangles with a square in the middle. Find the sum of $\angle a$, $\angle b$, $\angle c$, $\angle d$ and $\angle e$.



Ans: _____ °

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30. In the figure below, ABCD is a rhombus and AEFD is a parallelogram. ∠CDB = 47°. Find ∠x.



Ans: _____ °

END OF BOOKLET B

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CHRISTIAN BROTHERS' SCHOOLS

PRELIMINARY EXAMINATION

2016

PRIMARY 6

MATHEMATICS

PAPER 2

NAME: _____ ( )

CLASS: _____

18 Questions **Time : 1 h 40 min**
60 Marks

Instructions to candidates

- Do not open this booklet until you are told to do so.
- Follow all instructions given at the beginning of each section carefully.
- Show all working clearly as marks are awarded for correct working.
- Answer all questions.
- Do not waste time. If a question is difficult, go on to the next one.
- Write your answers in this booklet.
- You are allowed to use a calculator.

BOOKLET	MARKS	
	POSSIBLE	ACTUAL
PAPER 1	40	
PAPER 2	60	
TOTAL	100	

PARENT'S SIGNATURE:_____

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This booklet consists of 15 printed pages.

Questions 1 to 5 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.

(10 marks)

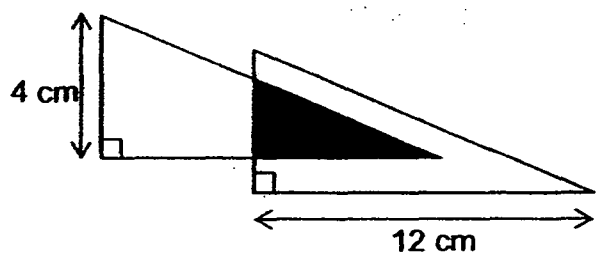
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1. At an exhibition, $\frac{2}{5}$ of the participants are children and the rest are adults. $\frac{1}{6}$ of the adults are men and the rest are women. What fraction of the participants are women? Give your answer in the simplest form.

Ans: _____

---

2. The figure below is made up of 2 identical triangles overlapping each other. The shaded area is 9 cm^2. What is the total area of the **unshaded** parts?



Ans: _____ cm^2

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3. The table below shows the number of goals scored by each player of a football club.

Number of goals scored by each football player	0	1	2	3	4
Number of players	8	15	7	?	6

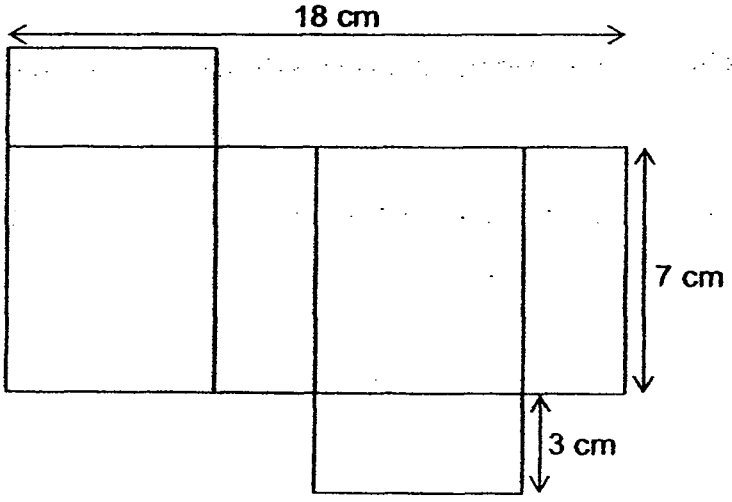
75% of the players scored less than 3 goals.

How many players scored 3 goals?

Ans: _____

---

4. The figure below shows the net of a solid. What is the volume of the solid?



Ans: _____ cm^3

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At a birthday party, each child received either 2 or 5 balloons. The ratio of the number of children at the party to the number of balloons given away was 5 : 19. What was the ratio of the number of children who received 2 balloons to the number of children who received 5 balloons?

Ans: _____

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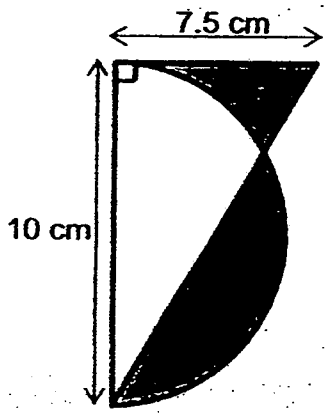
For Questions 6 to 18, show your workings clearly in the space provided for each question and write your answers in the spaces provided.
The number of marks available is shown in brackets [ ] at the end of each question or part-question.

(50 marks)

6. Gary and Fiona had 620 stickers altogether. After Gary gave Fiona 40 stickers and Fiona bought another 20 stickers, Gary had 3 times as many stickers as Fiona. How many stickers did Fiona have at first?

Ans: _____ [3]

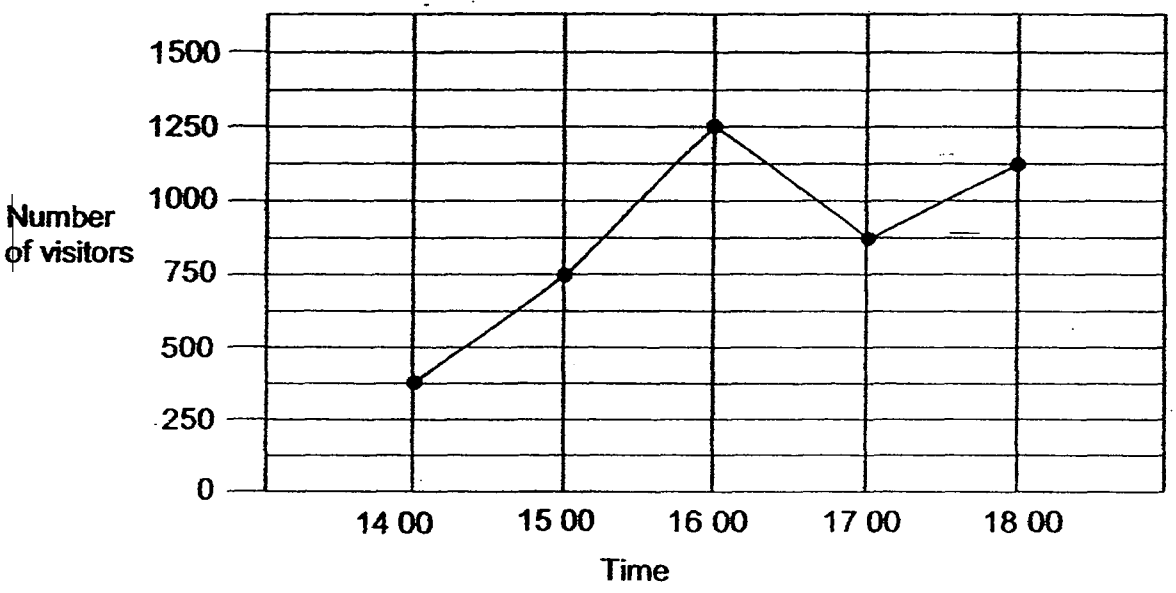
7. The figure below is made up of a semicircle and a right-angled triangle. The diameter of the semicircle is 10 cm. The area of the shaded region A is 23 cm^2. Find the area of the shaded region B. (Take π = 3.14)



Ans: _____ [3]

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8. The line graph below shows the number of visitors at the museum from 14 00 to 18 00.



(a) During which one-hour period was the increase in the number of visitors at the museum the greatest?

(b) What was the percentage decrease in the number of visitors from 16 00 to 17 00?

Ans: (a) Between _____ and _____ [1]

(b) _____ **[2]**

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9. Randel bought a total of $(8k + 3)$ postcards and calendars. There were $3k$ more postcards than calendars.

(a) How many calendars did he buy?
(Express your answer in terms of k.)

(b) If $k = 7$, how many calendars did he buy?

Ans: (a) _____ [2]

(b) _____ [1]

---

10. At 9 a.m., David left Town P travelling towards Town Q at an average speed of 80 km/h. 20 minutes later, Saul left Town Q travelling towards Town P at an average speed of 96 km/h. Saul met David at 12.40 p.m..
At what time did David reach Town Q?

Ans: _____ [3]

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11. Pei Yu had some marbles. 60% of the marbles were red and the rest were green. She gave away 125 red marbles and bought 125 more green marbles. The percentage of the marbles that were red became 35%.

(a) What fraction of the marbles were green in the end?
Give your answer in the simplest form.

(b) How many marbles did she have altogether at first?

Ans: (a) _____ [1]

(b) _____ [3]

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12. There are 42 pupils in a class. $\frac{1}{2}$ of the boys and $\frac{2}{5}$ of the girls in the class wear spectacles. If 19 pupils in the class wear spectacles, how many more girls than boys are there in the class?

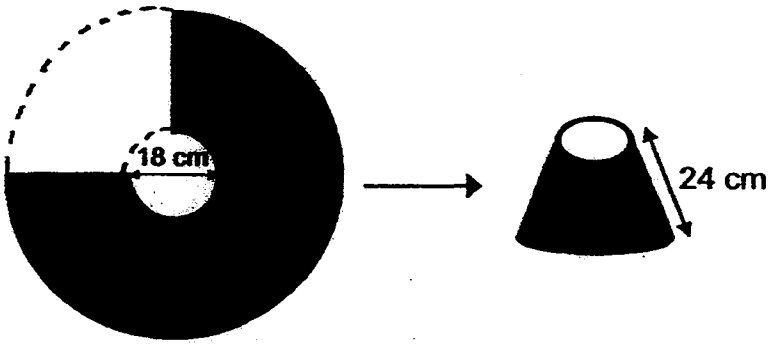
boys girls

Ans: _____ [4]

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13. A quarter of a piece of circular coloured paper had been cut out as shown below. The remaining piece of coloured paper was then folded to form a lamp shade.

What is the area of the lamp shade? (Take $\pi = 3.14$)



Coloured paper Lamp shade

Ans: _____ [4]

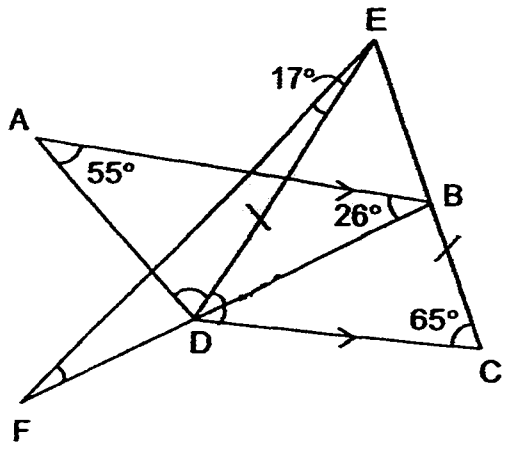
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14. In the figure below, ABCD is a trapezium, CDE is an isosceles triangle and BEF is a triangle.

$\angle ABF = 26°$, $\angle DEF = 17°$, $\angle BAD = 55°$ and $\angle DCE = 65°$.

(a) Find $\angle ADE$.

(b) Find $\angle BFE$.



Ans: (a) _____ [2]

(b) _____ [2]

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15. Ravi had a bag of 1-dollar coins and Jun Wei had a bag of 50-cent coins. After Ravi used $\frac{1}{4}$ of his coins and Jun Wei used $\frac{3}{5}$ of his coins, they had the same number of coins left. Given that both of them had $207 altogether in the end, how many coins did Ravi have at first?

Ans: _____ [4]

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16. Study the pattern below. The first four figures are shown.

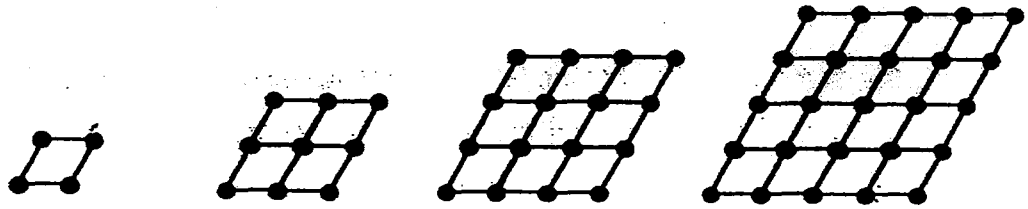


Figure 1 Figure 2 Figure 3 Figure 4

The table below shows the number of sticks and dots used to form each figure.

Figure	Number of sticks	Number of dots
1	4	4
2	12	9
3	24	16
4	40	25

(a) How many dots are used to form Figure 12?

(b) Which figure has 612 sticks?

Ans: (a) _____ [2]

(b) _____ [3]

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17. The tank shown below is made up of 2 containers.

The top container is a cuboid of base area 500 cm^2.

The bottom container is a cuboid of base area 700 cm^2 and height 27 cm.

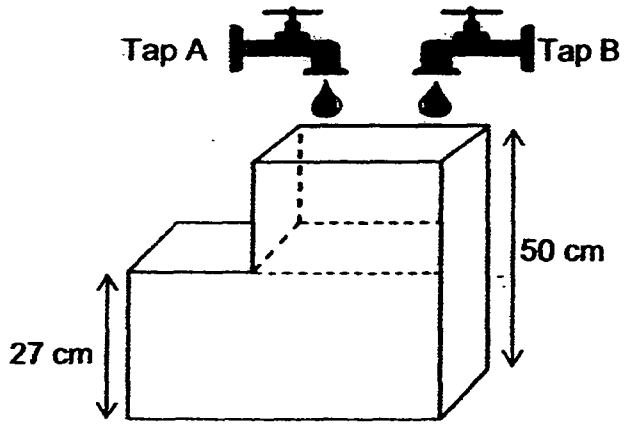
When Tap A was turned on, the height of the water level in the bottom container was increasing at the rate of 2.5 cm per minute.

When the bottom container was completely filled, Tap B was turned on too.

The rate of water flowing from Tap B was 250 $m\ell$ per minute.

(a) How long did it take for the bottom container to be completely filled?

(b) How long did it take for the whole tank to be completely filled?



Ans: (a) _____ [1]

(b) _____ [4]

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18. Allan, Bala and Chee Wee had some cards. The ratio of the number of Allan's cards to the number of Bala's cards was 3 : 5. After Bala and Chee Wee had both lost $\frac{1}{2}$ of their cards, Bala had 75 more cards than Chee Wee. The three children had 341 cards left in the end. How many cards did Chee Wee have at first?

Ans: _____ [5]

END OF PAPER

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Christian Brothers' Schools Preliminary Examination 2016 Primary 6 Mathematics Paper 1

1	4	6	1	11	1
2	2	7	4	12	3
3	4	8	3	13	3
4	2	9	2	14	2
5	3	10	3	15	2

16. $20 - 2 \times (5 + 4) \div 6 = 20 - 2(9) \div 6 = 20 - 18 \div 6 = 20 - 3 = 17$

17. 12.08 – 1.70 = 10.38

18. $\frac{36}{8} = 4\frac{4}{8} = 4\frac{1}{2}$

19. $\frac{4}{7} \div \frac{4}{5} = \frac{4}{7} \times \frac{5}{4} = \frac{5}{7}$

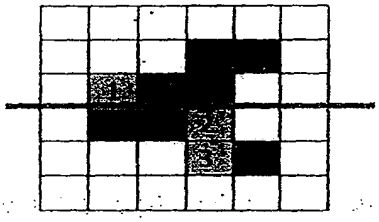
20. 7Kg 400g

21. Area of semi-circle = $\frac{1}{2} \times 3.14 \times 4 \times 4 = 25.12cm^2$

22. 100 m = \$0.35, 1km = 1000m, Ans: $1000m = 0.35 \times 10 = \$3.50$

23. Total = $27 \times 4 = 108$Kg

24.



25. B = 3, G = 7. Total = 10. Ratio → 7:10

26. 5T - \$14.50 = 3T + \$2.50, 2T = \$17, T = \$17 ÷ 2 = \$8.50. Ans: 8T = 8 x \$8.50 = \$68

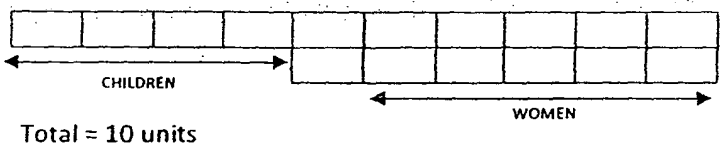
27. 3.2cm

28. Total = 150 + 150 = 300. Peach = 300 – 75 – 75 95 = 55, Ans: % peach = $\frac{55}{300} \times 100 = 18\frac{1}{3}\%$

29. a & d = 90° (Alt. angle of d + a = 90°), c & d = 90° (Alt. angle of c + b = 90°), e = 45°
Total = 90° + 90° + 45° = 225°

30. ADB = 47°, EFD = 180° – 47° = 133°, Ans: x = 360° – 133° = 227°

Christian Brothers' Schools Preliminary Examination 2016 Primary 6 Mathematics Paper 2



Total = 10 units
Women = 5 units
Fraction = $\frac{5}{10} = \frac{1}{2}$

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2. Area of 1 Triangle = $\frac{1}{2}$ x 12 x 4 = 24 cm^2
Area of 1 Triangle less shaded = 24 – 9 = 15 cm^2
Area of two triangle less shaded = 15 cm^2 x 2 = 30 cm^2

3. Less than 3 = 8 + 15 + 7 = 30
75% = 30, 100 % = 30/75 x 100 = 40
Players who scored 3 = 40 – 8 – 15 – 7 – 6 = 4

4. H = 3cm, B = (18-3-3) ÷ 2 = 6cm, L = 7cm
Volume = 7 x 6 x 3 = 126cm^3

5.

No. of Children	1	2	3	4
Given 2 balloons	2	4	6	8
Given 5 balloons	5	10	15	20

*Total Children must add to 5, Total balloons must add to 19
Ans: 2:3

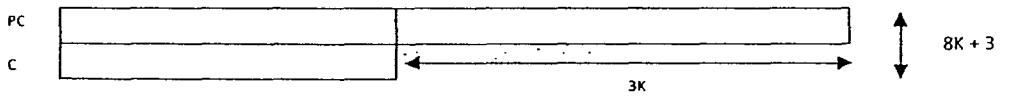
6. Total = 620 + 20 = 640, 3 units = Gary, 1 unit = Fiona
4 units = 640
1 unit = 640 ÷ 4 = 160
Fiona at first = 160 – 20 – 40 = 100

7. Area of semi-circle = $\frac{1}{2}$ x 3.14 x 5 x 5 = 39.25 cm^2
Area of unshaded = 39.25 – 23 = 16.25 cm^2
Area of triangle = $\frac{1}{2}$ x 7.5 x 10 = 37.5 cm^2

Area of B = 37.5 – 16.25 = 21.25 cm^2

8(a) 1500 and 1600
(b) 1 unit = 125. Decrease = 1250 – 875 = 375
% = 375/1250 x 100 = 30%

9(a)



(8k + 3 – 3K) ÷ 2 = $\frac{(5k+3)}{2}$

(b) if k = 7, [5(7) + 3] / 2 = 19

10) Time from the point they met to Town Q taken by Saul = 12.40pm – 9.20pm = 3 h 20 min
Dist of the point they met to Town Q taken by Saul = $3\frac{20}{60} \times 96$ = 320km
Time taken by David from point they met to Town Q = 320 ÷ 80 = 4h
Time David reach Q = 12.40pm + 4h = 4.40pm

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11(a) 60% - 25% = 35%

35% = 125 red marbles

100% = 125/35 x 100 = 500 marbles (total)

Green in the end = 100 – 35 = 65%

65% = 0.65 x 500 = 325

Fraction = $\frac{325}{500} = \frac{13}{20}$

(b) 100% = 125/35 x 100 = 500 marbles (total)

12)

Boys	Girls	
$\frac{1}{2}$ with specs	$\frac{2}{5}$ with specs	19
$\frac{1}{2}$ without specs	$\frac{3}{5}$ without specs	42 – 19 = 23

1 unit of Girl = 23 – 19 = 4

Total girls = 5 units = 4 x 5 = 20

Total boys = 42 – 20 = 22

Difference = 22 -20 = 2

13) Diameter whole circle = 24 + 24 + 18 = 66

R = 66 ÷ 2 = 33

Area of whole circle = 3.14 x 33 x 33 = 3419.46cm^2

Diameter of smaller circle = 18 ÷ 2 = 9

Area of small circle = 3.14 x 9 x 9 = 254.34 cm^2

Area of whole circle less the small circle = 3419.46 – 254.34 = 3165.12cm^2

Lamp Shade = $\frac{3}{4}$ x 3165.12 = 2373.84 cm^2

14(a) BDC = 26°, EDB = 65 – 26 = 39°

ADE = 180 – 55- 26 – 39 = 60°

(b) ADF = 180 – 60 – 39 = 81°

BFE = 180 – 81 – 60 – 17 = 22°

15)

	Use	Left
Ravi	1	3
Jun Wei	3	2

	Use	Left
Ravi	1x2 = 2	3x2 = 6
Jun Wei	3x3 = 9	2x3 = 6

$207 ÷ ($1+$0.50) = 138

6 units = 138 sets, 1 unit = 138÷6 = 23

Ravi have at first = 2 units + 6 units = (23 x 8) = $184

16(a) 12 + 1 = 13, 13 X 13 = 169

(b) n(2n + 2) = 2n(n+1)

2n(n+1) = 612

n(n+1) = 306. Answer: 17 (as n+1 = 18)

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17(a) = 27 ÷ 2.5 = 10.8min

(b)Rate of tap B per min = 250ml

Volume of top container = 500 x (50-27) = 11500cm3

Volume of bottom container = 700 x 27 = 18900cm3

Rate of tap A per min = 700 x 2.5 = 1750ml / min

Total rate for tap A & B = 1750 + 250 = 2000ml

11500 ÷ 2000 = 5.75 min

Total time = 5.75 + 10.8 = 16.55min

18)

Alan	Bala	Chee Wee
3	5	?
6	10	?
6	5	5 & (-75cards)

6 units + 5 units + 5 units – 75 cards = 341

16 units = 416, 1unit = 26

Chee wee = 5units (26 x 5) – 75 = 55 (After)

At first = 55 X 2 = 110

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