



CATHOLIC HIGH SCHOOL
PRELIMINARY EXAMINATION 1 2014
MATHEMATICS
PRIMARY 6
PAPER 1
(BOOKLET A)

Name : _____ ()

Class: Primary 6 _____

Date: 20 May 2014

Total Time for Booklets A and B: 50 min

15 questions

20 marks

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.

Booklet A and B consist of 13 printed pages.

Questions 1 to 10 carry 1 mark each. Questions 11 to 15 carry 2 marks each.
For each question, four options are given. One of them is the correct answer.
Make your choice (1, 2, 3 or 4). Shade the oval (1, 2, 3 or 4) on the Optical
Answer Sheet. All diagrams are not drawn to scale. (20 marks)

1. Which one of the following numbers is the smallest?

(1) 0.304

(2) 0.034

(3) 0.403

(4) 0.043

2. Which one of the following is the best estimate for 39.6×20.4 ?

(1) 39×20

(2) 39×21

(3) 40×20

(4) 40×21

3. Which one of the following fractions is smaller than $\frac{1}{4}$?

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

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

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

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

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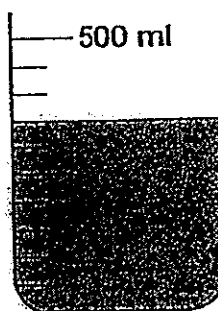
4. The number of visitors to a tourist attraction last year when rounded off to the nearest thousand is 400 000. Which one of the following is the possible actual number of visitors?

- (1) 400 499
 - (2) 400 900
 - (3) 401 490
 - (4) 400 983
-

5. Find the sum of 6 hundreds, 9 tenths and 5 thousandths.

- (1) 690.005
 - (2) 600 590
 - (3) 600.905
 - (4) 600.095
-

6. The container below contained water. What was the volume of the water in the container?



- (1) 270 ml
 - (2) 290 ml
 - (3) 300 ml
 - (4) 350 ml
-

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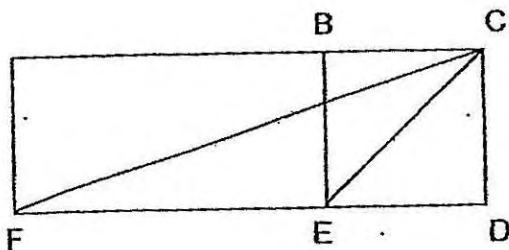
7. Express 12 050 grams in kilograms.

- (1) 1.205 kg
 - (2) 12.05 kg
 - (3) 120.5 kg
 - (4) 1205 kg
-

8. Sean had a mixture of 20¢, 50¢ and \$1 coins in his wallet. There were 6 coins altogether. Which one of the following could not be the amount of money in Sean's wallet?

- (1) \$2.30
 - (2) \$2.50
 - (3) \$2.60
 - (4) \$2.90
-

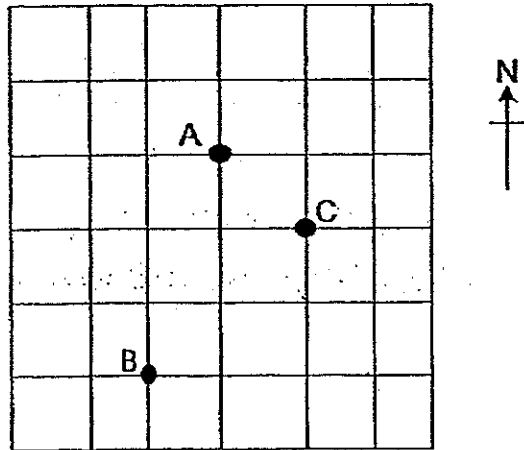
9. Rectangle ACDF is made up of a smaller rectangle ABEF and a square BCDE. FCE is a triangle. The ratio of the length of FD to the length of CD is 3 : 1. The area of the square is 50 cm^2 . What is the area of the triangle FCE?



- (1) 50 cm^2
 - (2) 75 cm^2
 - (3) 100 cm^2
 - (4) 125 cm^2
-

Go on to the next page

10. In the square grid below, A, B and C are three points on the ground. Point A is North-West of C. In what direction is point C from point B?



- (1) North-East
- (2) North-West
- (3) South-East
- (4) South-West

11. Four different rectangles are used to form a pattern. The first 14 rectangles are shown below. Which rectangle is in the 39th position?

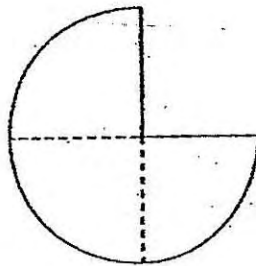


- (1)
- (2)
- (3)
- (4)

Go on to the next page

12. The figure below is made up of 3 identical quarter circles with a radius of 14 cm. Find the perimeter of the figure.

(Take $\pi = \frac{22}{7}$)



- (1) 66 cm
(2) 88 cm
(3) 94 cm
(4) 116 cm
-
13. Mrs Tan had $\frac{5}{7}$ kg of flour to bake some cakes. $\frac{1}{5}$ kg of the flour was used for each cake. How much of the flour was left after Mrs Tan baked the greatest possible number of cakes?

- (1) $\frac{1}{7}$ kg
(2) $\frac{4}{7}$ kg
(3) $\frac{4}{35}$ kg
(4) $\frac{18}{35}$ kg
-

Go on to the next page

14. The table shows the rate of charges for taxi fare during non-peak hours of travel.

Taxi fare	
First 3 km	\$2.50
Additional kilometre or part thereof	\$0.50

Mrs Wong boarded a taxi and paid \$27.50 in taxi fare at the end of her journey. What was the greatest possible distance traveled during non-peak hours?

- (1) 50 km
(2) 53 km
(3) 55 km
(4) 58 km
-
15. At an amusement park, the ratio of the number of adults to the number of children was 7 : 6. The ratio of the number of boys to the number of girls was 3 : 1. What was the ratio of the number of boys to the number of adults? Give your answer in the simplest form.
- (1) 1 : 7
(2) 3 : 7
(3) 3 : 14
(4) 9 : 14

END OF BOOKLET A



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(BOOKLET B)

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15 questions

20 marks

Booklet A	
Booklet B	
Total	

INSTRUCTIONS TO CANDIDATES

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Answer all questions.

Write your answers in this booklet.

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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)

Do not write in this space.

16. Write two hundred and six thousand and seventy-nine in figures.

Ans: _____

17. Find the value of $70 - (80 - 15) \div 5 + 4$.

Ans: _____

18. Find the value of 3.97×90 .
Express the answer in decimal.

Ans: _____

Go on to the next page

19. The average of 5 consecutive whole numbers is 37. What is the greatest whole number?

Do not write
in this space.

Ans: _____

20. Express 2.5 as a percentage.

Ans: _____ %

21. Find the value of $2k - \frac{3+k}{7}$ when $k = 7$.
Give your answer as a mixed number in the simplest form.

Ans: _____

(Go on to the next page)

22. Kenneth's watch was 8 minutes slow. He went to a cinema and missed the first 4 minutes of the movie upon arrival. His watch showed 8.32 p.m. when he arrived. What time did the movie start?

Do not write in this space.

Ans: _____ p.m.

23. There are white and red roses in a vase. 15 roses are white and 25 roses are red. What fraction of the roses is white? Give your answer in simplest form:

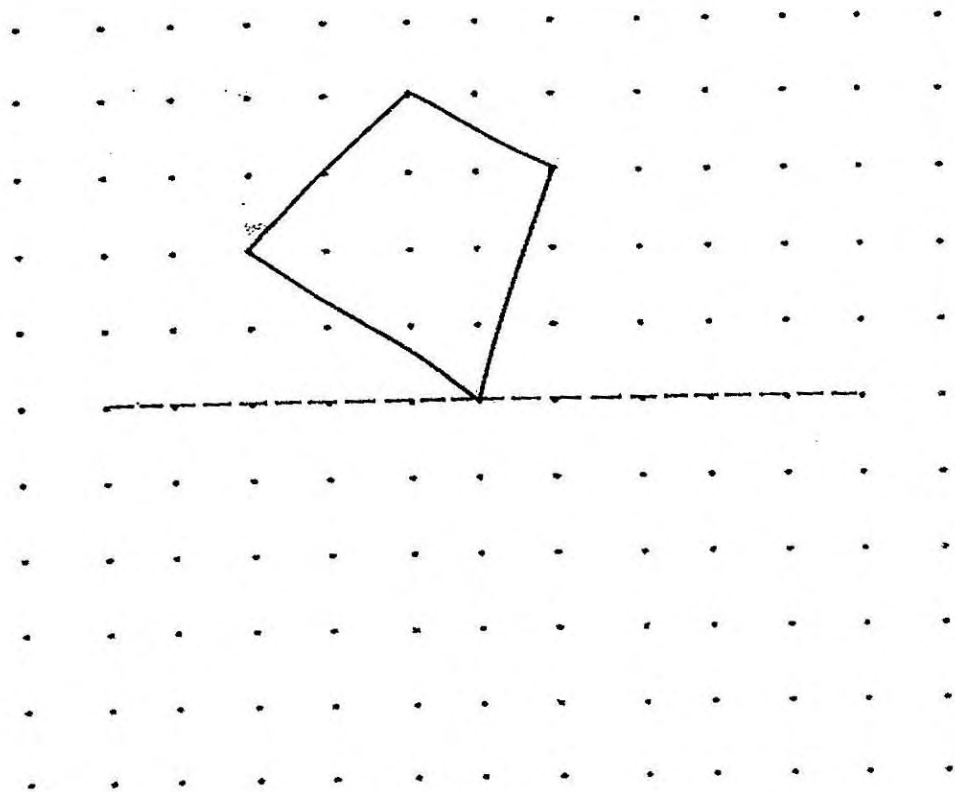
Ans: _____

24. Find the difference in value between $4\frac{1}{2} - \frac{5}{6}$. Give your answer as a mixed number in simplest form.

Ans: _____

(Go on to the next page)

25. The diagram below shows half of a symmetric figure with the dotted line as its line of symmetry. Draw the other half of the symmetric figure to complete the symmetric figure.



Total marks for questions 16 to 25

Go on to the next page

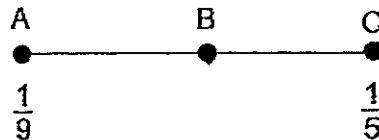
Questions 26 to 30 carry 2 marks each. Show your working and write your answers in the spaces provided. For questions which require units, give your answers in the units stated. (10 marks)

Do not write in this space.

26. Find the value of $3 \div 7$ and correct the answer to 2 decimal places.

Ans: _____

27. In the number line below, Point A represents $\frac{1}{9}$, Point C represents $\frac{1}{5}$ and $AB = BC$. What fraction is represented by Point B?



Ans: _____

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28. A rectangle has a perimeter of 42 cm. Its length is twice its breadth. Find the breadth of the rectangle.

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in this space.

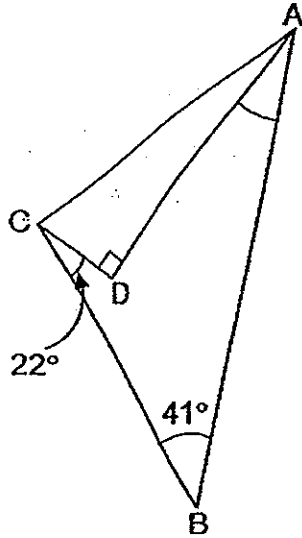
Ans: _____ cm

29. Bobby and Ken had some money in the ratio 5 : 3. Bobby had \$48 more than Ken. How much did Ken have?

Ans: _____

Go on to the next page

30. In the figure below, ABC and ADC are triangles.
 $\angle ADC = 90^\circ$, $\angle ABC = 41^\circ$ and $\angle DCB = 22^\circ$. Find $\angle DAB$.



Ans: _____^o

Do not write
in this space.

Total marks for questions 26 to 30

END OF BOOKLET B
END OF PAPER 1

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. All diagrams are not drawn to scale. (10 marks)

Do not write in this space.

1. Bala did sit-ups for 3 days. On each day, he would do 2 more sit-ups than the previous day. He did y number of sit-ups on the first day. What was the total number of sit-ups he did for the 3 days?
Give your answer in terms of y .

Ans: _____

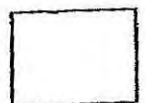
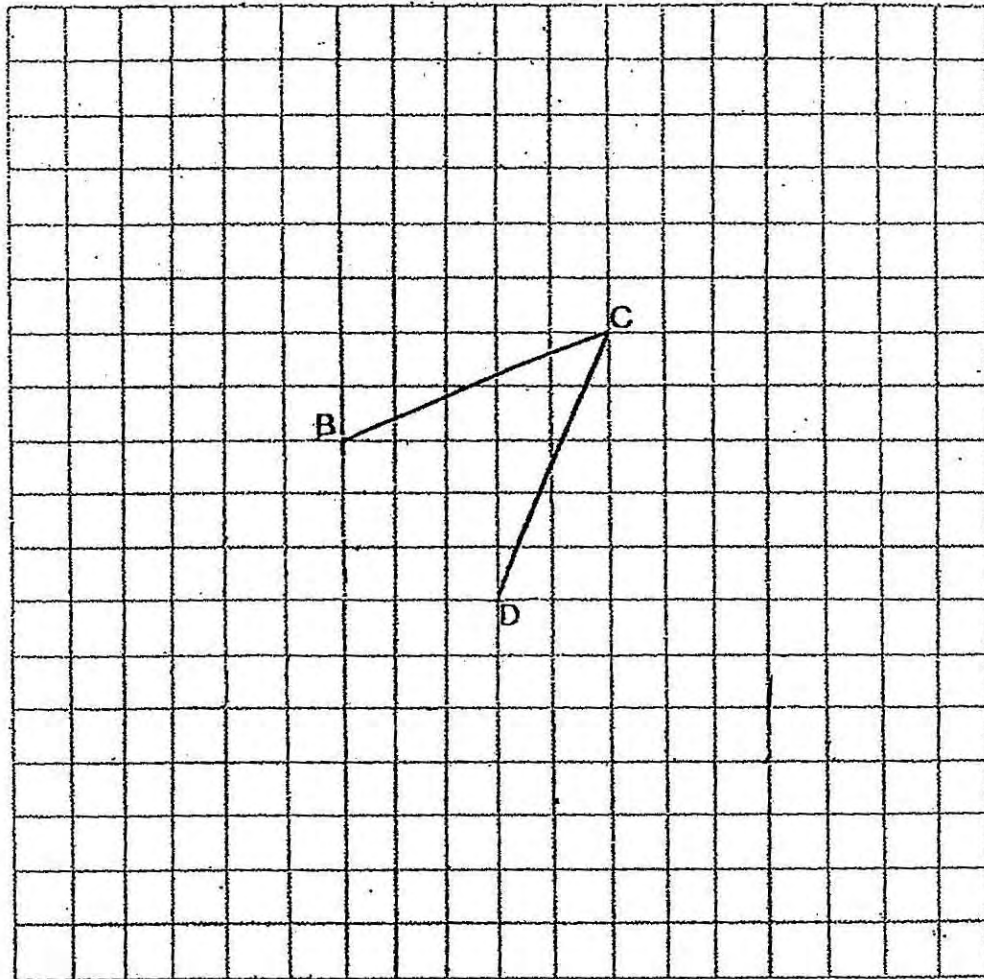
2. Nicholas paid \$240 for a microwave oven after a discount of 40%. What was the price of the microwave oven before the discount?

Ans:\$ _____

(Go on to the next page)

3. In the square grid below, BC and CD are sides of a rhombus ABCD. Complete the rhombus by drawing the other two sides in the square grid below.

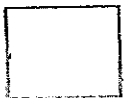
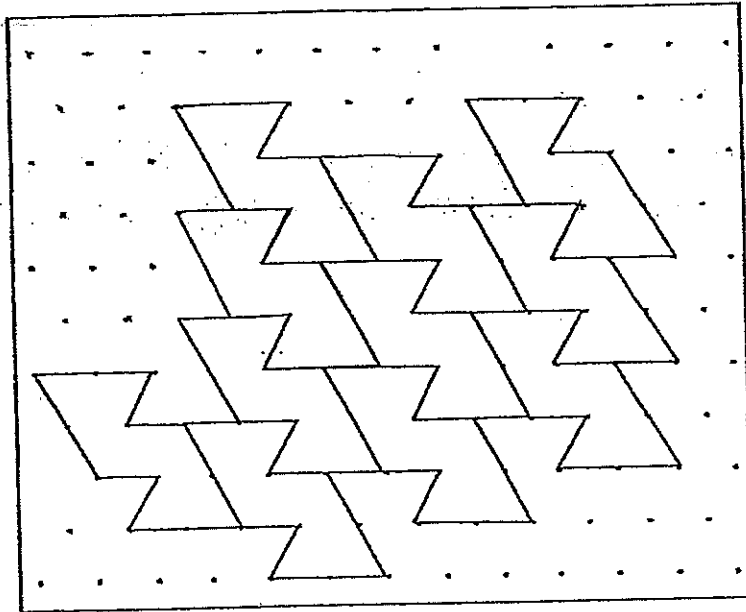
Do not write in this space.



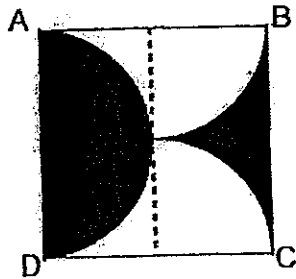
(Go on to the next page)

4. The pattern in the box shows part of a tessellation. Extend the tessellation by drawing three more unit shapes in the space provided in the box.

Do not write in this space.



5. The figure below is formed by a semicircle, 2 identical quarter circles and lines AB, BC, CD and DA. $AB = BC = CD = DA = 60$ cm. What is the total area of the shaded parts?



Ans: _____ cm^2



(Go on to the next page)

For questions 6 to 18, show your working 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. All diagrams are not drawn to scale. (50 marks)

Do not write in this space.

6. Mrs Wong needed 60 apple pies for a party. How much money would she need to pay for the apple pies at the special promotion?

Special promotion!
Each apple pie costs \$4.
Buy 3, get next 2 free

Ans: _____ [3]

(Go on to the next page)

7. There were 369 roses and lilies at a flower shop. After $\frac{2}{5}$ of the roses and $\frac{3}{7}$ of the lilies were sold, there was an equal number of roses and lilies left. How many roses were left?

Do not write
in this space.

Ans: _____ [3]

(Go on to the next page)

8. A container with 60 balls in it weighed 980 g. When 10 balls were removed from the container, the container with the remaining balls weighed 855 g. Find the mass of 1 ball.

Do not write
in this space.

Ans: _____ [3]



(Go on to the next page)

9. A group of boys had an average number of 42 marbles. One of the boys had wrongly counted his marbles as 35. The correct number of marbles he had should be 53. After re-counting the marbles, the average number of marbles they had increased to 45. How many boys were there in the group?

Do not write
in this space.

Ans: _____ [3]

(Go on to the next page)

10. Figure 1 shows a rectangle ABCD.

It is folded along AC to form Figure 2. The area of Figure 2 is $\frac{5}{8}$ of the area of Figure 1. The area of the shaded part in Figure 2 is 36 cm^2 . Find the area of rectangle ABCD.

Do not write in this space.

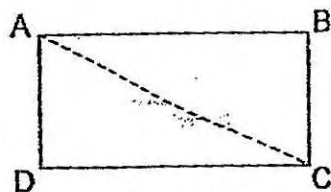


Figure 1

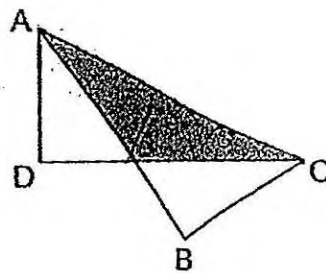
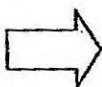
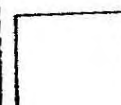


Figure 2

Ans: _____ [3]



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11. The ratio of the number of 20¢ coins to the number of 50¢ coins to the number of \$1 coins in a money box is 3 : 5 : 4. The difference in value between the 20¢ coins and the \$1 coins is \$88.40. How many 50¢ coins are there in the money box?

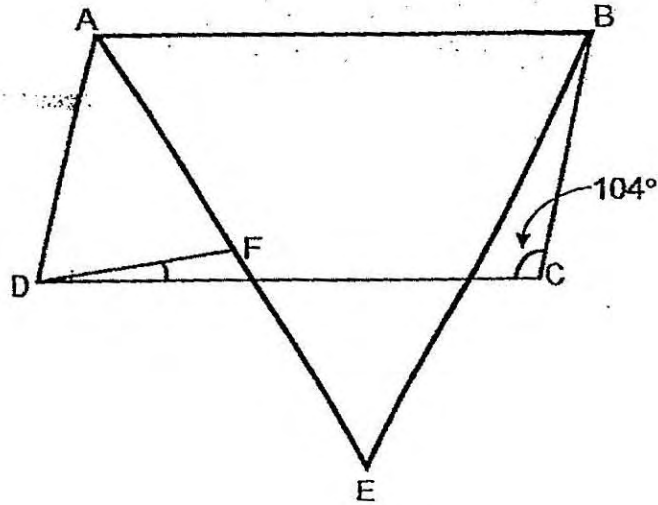
Do not write
in this space.

Ans: _____ [4]

(Go on to the next page)

12. In the figure below, ABCD is a parallelogram with length AB twice the length of AD. ABE is an equilateral triangle. F is a point on AE such that $AF = FE$. $\angle BCD$ is 104° . Find $\angle FDC$.

Do not write in this space.



Ans: _____ [4]



(Go on to the next page)

13. The ratio of the mass of sugar in packet A to the mass of sugar in packet B is 5 : 6. The mass of sugar in packet A is increased by 30%. By what percentage must the mass of sugar in packet B be decreased so that the total mass of sugar in packet A and B remains the same?

Do not write
in this space.

Ans: _____ [4]

(Go on to the next page)

14. Mrs Chan baked chocolate, strawberry and vanilla puffs. She baked 132 chocolate puffs. 35% of her puffs were strawberry puffs. She baked 12 more vanilla puffs than strawberry puffs. How many chocolate puffs and vanilla puffs did Mrs Chan bake altogether?

Do not write
in this space.

Ans: _____ [4]

(Go on to the next page)

15. Patrick spent 25% of his savings on a bag and 40% of the remainder on a pair of shorts. He was left with \$135. How much savings did Patrick have at first?

Do not write
in this space.

Ans: _____ [4]



(Go on to the next page)

16. 1 cm square files and triangular files were used to make some figures. The area of each triangular file was half that of a square file. The first four figures are shown below.

Do not write in this space.

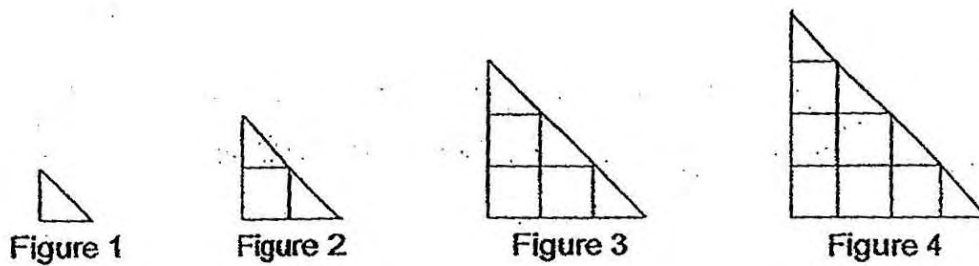


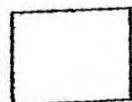
Figure Number	Number of triangles	Number of squares	Area of figure (cm ²)
1	1	0	0.5
2	2	1	2
3	3	3	4.5
4	4	6	8
5	5	10	?

(a) Find the area of Figure 5.

(b) How many squares were used to make a figure with an area of 180.5 cm²?

Ans : (a) _____ [2]

Ans : (b) _____ [3]



(Go on to the next page)

17. There were 156 more silver balloons than gold balloons at a party. After $\frac{5}{6}$ of the silver balloons and $\frac{3}{4}$ of the gold balloons burst, there were 106 balloons left. How many balloons were there altogether at first?

Do not write
in this space.

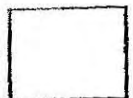
Ans: _____ [5]

(Go on to the next page)

18. Pens and pencils were sold in packets of 2 pens and packets of 3 pencils respectively. Each packet of pens was sold at \$5 and each packet of pencils was sold at \$0.90. Mrs Chan bought 96 pens and pencils and paid \$134.40. How many pencils did she buy?

Do not write
in this space.

Ans: _____ [5]



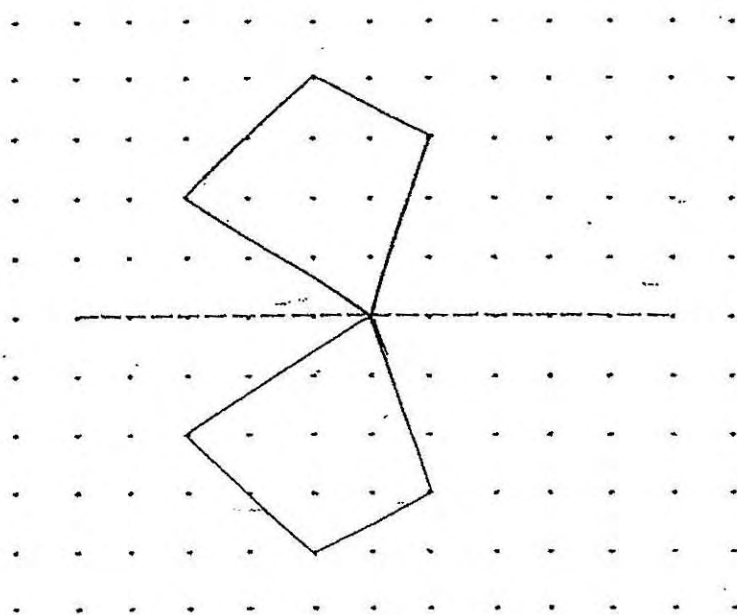
**END OF PAPER.
PLEASE CHECK YOUR WORK CAREFULLY.**

$$22) 8.32 + 8 \text{ min} - 4 \text{ min} = 8.36 \text{ p.m.}$$

$$23) 25 + 15 = 40$$
$$15/40 = 3/8$$

$$24) 4\frac{1}{2} - \frac{5}{6}$$
$$= \frac{43}{6} - \frac{5}{6}$$
$$= \frac{39}{6} - \frac{5}{6}$$
$$= \frac{34}{6}$$
$$= \frac{17}{3}$$

25)



$$26) 3 \div 7 = 0.428 \approx 0.43$$

$$27) \frac{1}{9} + \frac{1}{5}$$
$$= \frac{5}{45} + \frac{9}{45}$$
$$= \frac{14}{45}$$
$$\frac{14}{45} \div \frac{2}{1} = \frac{14}{45} \times \frac{1}{2} = \frac{7}{45}$$

$$28) L : B$$
$$2 : 1$$

$$42 \div 2 = 21$$

$$3u \rightarrow 21$$

$$1u \rightarrow 21 \div 3 = 7$$

$$29) 5 - 3 = 2$$

$$2u \rightarrow \$48$$

$$3u \rightarrow 48/2 \times 3 = \$72$$

$$30) 180 - 22 - 90 - 41$$
$$= 37$$

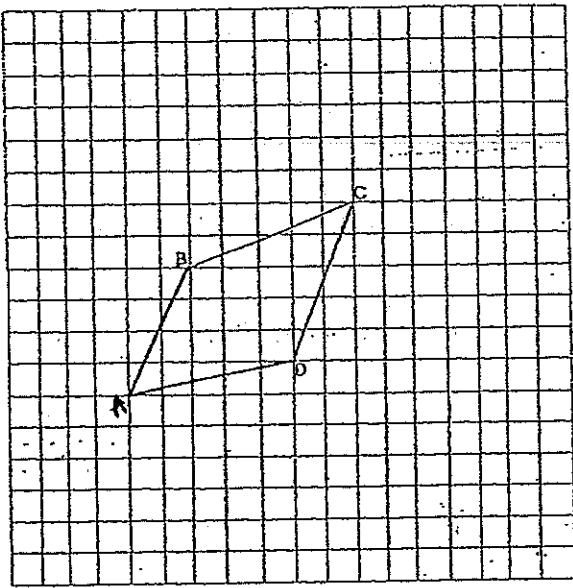
Paper 2

1) $y + y + 2 + y + 4 = 3y + 6$

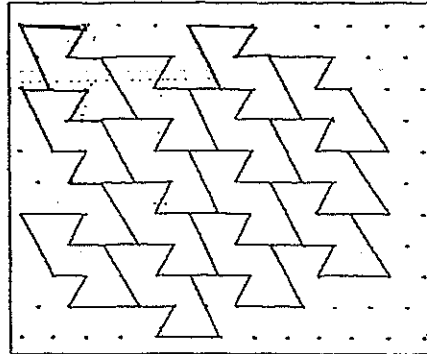
2) $60\% = \$240$

$100\% = \$240/60 \times 100 = \400

3)



4)



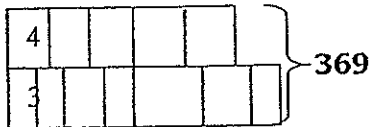
5) $30 \times 60 = 1800 \text{ cm}^2$

6) $60 \div 5 = 12 \text{ sets}$

$3 \times \$4 = \12

$12 \times \$12 = \144

7) R



$20u + 21u = 369$

$41u = 369$

$12u = 369/41 \times 12$

$= 108 \text{ roses}$

8) $980 - 855 = 125$

$10 \text{ balls} = 125 \text{ g}$

$1 \text{ ball} = 125/10$

$= 12.5 \text{ g}$

9) $53 - 35 = 18$

$45 - 42 = 3$

$18 \div 3 = 6 \text{ boys}$

10) $8 - 5 = 3$

$3u = 36$

$8u = 36/3 \times 8$

$= 96 \text{ cm}^2$

$$\begin{aligned}
 11) & 3 \times 20¢ = 60¢ \\
 & 4 \times 100¢ = 400¢ \\
 & 400 - 60 = 340 \\
 & 8840 \div 340 = 26 \text{ sets} \\
 & 26 \times 5 = 130
 \end{aligned}$$

$$\begin{aligned}
 12) & 104 - 60 = 44 \\
 & 180 - 44 = 136 \\
 & 136 \div 2 = 68 \\
 & 180 - 68 - 104 = 8
 \end{aligned}$$

$$\begin{aligned}
 13) & A : B : \text{total} \\
 & 5 : 6 : 11
 \end{aligned}$$

$$\begin{aligned}
 & 100 + 30 = 130 \\
 & 130/100 \times 5u = 6.5u \\
 & 11 - 6.5 = 4.5 \\
 & 6 - 4.5 = 1.5 \\
 & 1.5/6 \times 100\% = 25\%
 \end{aligned}$$

$$\begin{aligned}
 14) & 100 - 35 - 35 = 30 \\
 & 30\% = 132 + 12 \\
 & 30\% = 144 \\
 & 65\% = 144/30 \times 65 = 312
 \end{aligned}$$

$$\begin{aligned}
 15) & 100 - 25 = 75 \\
 & 100 - 40 = 60 \\
 & 60/100 \times 75 = 45 \\
 & 45\% = \$135 \\
 & 100\% = 135/45 \times 100 = \$300
 \end{aligned}$$

$$\begin{aligned}
 16) & a) \frac{1}{2} \times 5 \times 5 = 12.5 \text{ cm}^2 \\
 & b) 180.5 \times 2 = 361
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{361} = 19 \\
 & 1 + 2 + 3 + \dots + 18 \\
 & = 19 \times 9 = 171
 \end{aligned}$$

$$\begin{aligned}
 17) & 1 - 5/6 = 1/6 = 2/12 \\
 & 1 - 3/4 = 1/4 = 3/12 \\
 & 1/6 \times 156 = 26 \\
 & 2u + 3u + 26 = 106 \\
 & 5u = 106 - 26 = 80 \\
 & 24u = 80/5 \times 24 = 384 \\
 & 384 + 156 = 540
 \end{aligned}$$

$$\begin{aligned}
 18) & (96 \div 2) \times \$5 = \$240 \\
 & \$240 - \$134.40 = \$105.60 \\
 & 6 \text{ pens} = 3 \times \$5 = \$15 \\
 & 6 \text{ pencils} = 2 \times \$0.90 = \$1.80 \\
 & \$15 - \$1.80 = \$13.20 \\
 & \$105.60 \div \$13.20 = 8 \text{ sets} \\
 & 8 \times 6 = 48 \text{ pencils}
 \end{aligned}$$