RAFFLES GIRLS' PRIMARY SCHOOL

PRELIMINARY EXAMINATION

2004

Name : _____ Class: P6____ Index No: _____

Your Score Out of **100** marks		
	Class	**Level**
Highest score		
Average score		
Parent's Signature		

24 August 2004 **MATHEMATICS** ATT: 2 h 15 min

<u>Booklet A1 (25 marks)</u>

Questions 1 to 5 carry 1 mark each.

Questions 6 to 15 carry 2 marks each.

For each question, four options are given.

One of them is the correct answer.

Make your choice (1, 2, 3 or 4) and shade the correct oval on the Optical Answer Sheet.

1. Arrange the following numbers in ascending order.

    987 798,   897 787,   879 879,   978 989

    (1)   879 879,   897 787,   978 989,   987 798
    (2)   879 879,   897 787,   987 798,   978 989
    (3)   978 989,   987 798,   897 787,   879 879
    (4)   987 798,   978 989,   897 787,   879 879

                                                          (   )

2. What is the missing number in the box?

    $$1\frac{2}{5} + 1\frac{2}{5} + 1\frac{2}{5} + 1\frac{2}{5} = \boxed{} \times \frac{7}{5} + 1\frac{2}{5}$$

    (1)   21
    (2)   2
    (3)   3
    (4)   4

                                                          (   )

1

3. Round off 68.099 to the nearest hundredth.

   (1)   68.09
   (2)   68.10
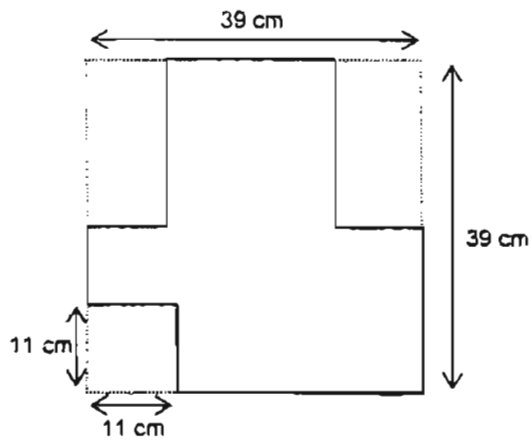   (3)   68.1
   (4)   69.10

   (   )

4. What is ten times the length of $\frac{3}{5}$ metre?

   (1)   6 cm
   (2)   60 cm
   (3)   600 cm
   (4)   6000 cm

   (   )

5. Find the perimeter of the shaded figure.

   (1)   117 cm
   (2)   128 cm
   (3)   134 cm
   (4)   156 cm

   (   )

6. Which of the following is **incorrect**?

(1) $\dfrac{1}{9} < \dfrac{1}{8}$

(2) $\dfrac{3}{4} < \dfrac{5}{7}$

(3) $\dfrac{3}{5} > \dfrac{4}{8}$

(4) $\dfrac{1}{2} > \dfrac{1}{6}$

(   )

7. Jonathan bought 4 blue pencils at 40 cents each and a red pencil at 50 cents. Find the average cost of the pencils that Jonathan bought.

(1) 40 cents
(2) 42 cents
(3) 45 cents
(4) 50 cents

(   )

8. The average of three numbers is $7x$. One number is $2x$ and another number is 8. Express the third number in terms of x.

(1) $19x - 8$
(2) $21x - 8$
(3) $5x - 8$
(4) $9x + 8$

(   )

9. $\dfrac{2}{5}$ of the pupils in a school wear spectacles. Express as a percentage, pupils in the school who do not wear spectacles?

(1) 20 %
(2) 40 %
(3) 60 %
(4) 70 %

(   )

3

10. This table shows a part of the television programme planned for Tuesday.

6.45 p.m.	Cartoon Capers
7.10 p.m.	Movie
9.00 p.m.	News in Brief

However, the movie actually took 13 minutes longer to end than planned. How long did the movie last?

(1) 1 h 50 min
(2) 1 h 53 min
(3) 2 h   3 min
(4) 2 h 13 min   (   )

11. Part of a fish is shown in the square grid below. Find the area of the shaded part of the fish.
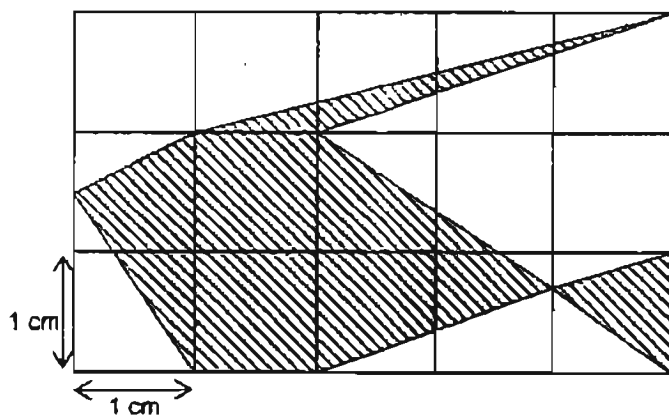
(1) 5.0 cm^2
(2) 5.5 cm^2
(3) 6.0 cm^2
(4) 6.5 cm^2

                                                    (   )

12. The table below shows how Raju spent his pocket money last week.

Expenditure	Book	Pen	Toy	Food
Amount ($)	12	4	10	?

Raju spent 25% of his pocket money on the book and the toy.
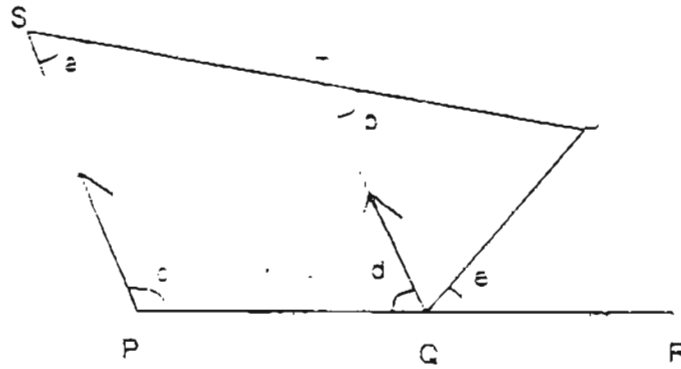How much was his pocket money?

(1) $22
(2) $26
(3) $74
(4) $88

(   )

13. In the figure below, not drawn to scale, ABC is a straight line and BXCY is a square. Find $\angle q$.

(1)   75°
(2)   105°
(3)   120°
(4)   135°

(   )
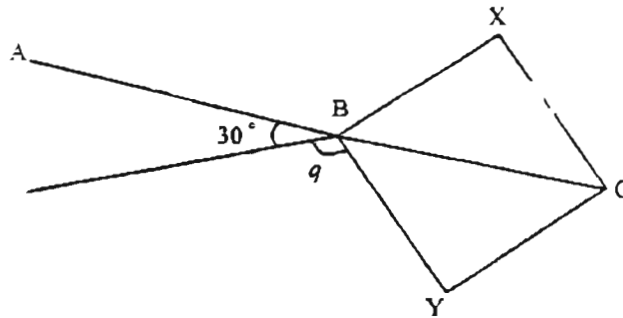
5

14. The figure below is not drawn to scale. SP is parallel to TQ. PQR and STU are straight lines. Which one of the following statements is **true**?

(1) $\angle a - \angle b = 180$
(2) $\angle a - \angle c = 180$
(3) $\angle b - \angle e = 180$
(4) $\angle c - \angle d = 180$

(   )

15. Jane bought half a dozen stalks of roses for $7.
Find the cost of 9 stalks of roses.

(1) $ 5.25
(2) $ 6.30
(3) $ 10.50
(4) $ 31.50

(   )

Name: _____ Class: P 6____ Index No: _____

Booklet A2 (20 marks)
Questions 16 to 35 carry 1 mark each.
Write your answer in the space provided.
Give your answer in the units stated.

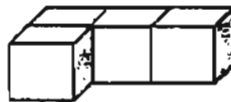16. Find the value of $(36 + 8 \times 2) + 36 \div 4$.

Ans: _____

17. Express $\dfrac{25}{7}$ as a mixed number.

Ans: _____

18. Find the value of $7 + \dfrac{4}{5}$
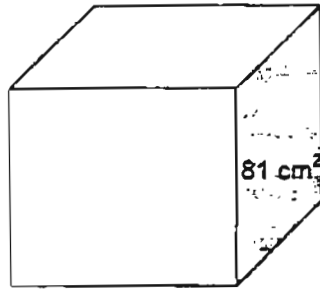Write your answer as a decimal.

Ans: _____

19.

All the cubes that make up this solid are identical and they add up to a total volume of 108 cm³. Find the length of each cube.

Ans: _____ cm
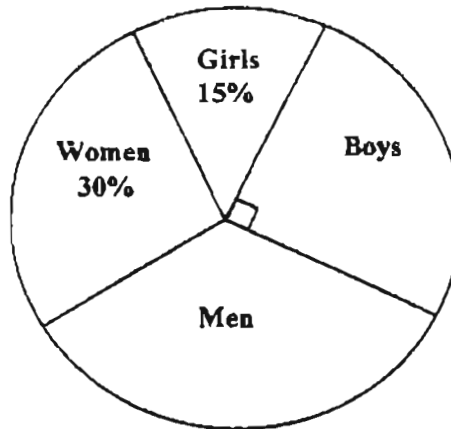
20   The area of one face of the cube is 81 cm². What is the volume of the cube?

                                                      Ans: _____ cm³

21. The pie chart below shows the percentage of men, women, girls and boys who took part in a sports carnival.
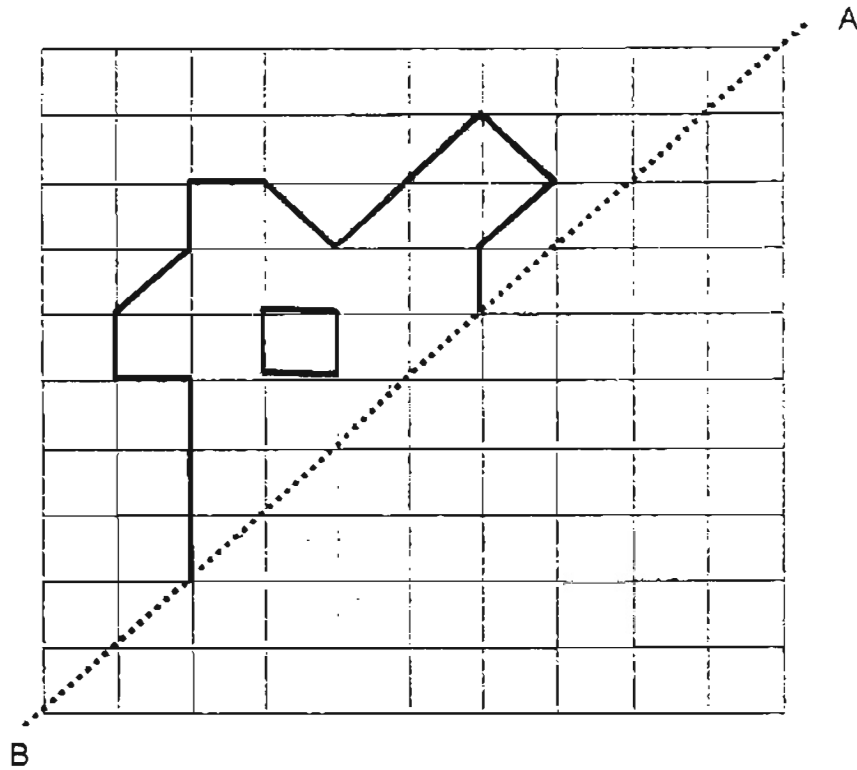

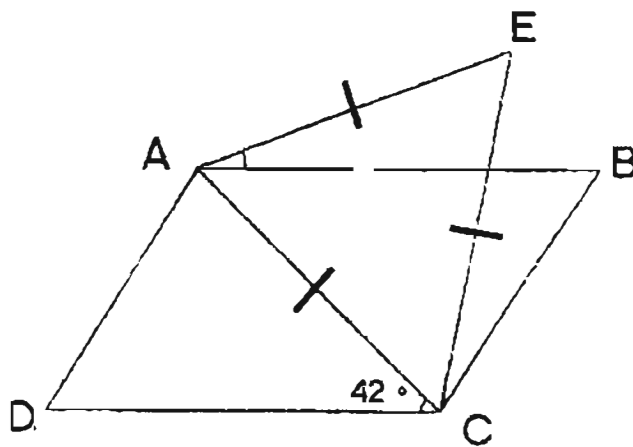What percentage of those who took part in the carnival were men?

                                                      Ans: _____ %

22. Complete the figure in the grid to show that AB is the line of symmetry.

23. In this figure, not drawn to scale, ABCD is a parallelogram and AEC is an equilateral triangle. ∠ACD = 42°. Find ∠EAB.
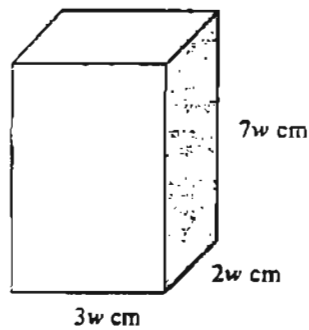

Ans: _____ °

9

24. My father's car travels 17 km on 1 litre of petrol.
    At this rate, how much petrol will be needed for the car to travel 187 km ?

    Ans: _____ litres

25. John's savings is three times Mary's savings but is only $\frac{3}{5}$ Eric's savings.
    What is the ratio of John's savings to Mary's savings to Eric's savings?

    Ans: _____

26. Find the volume of the box below given that w = 6.

    7w cm

    2w cm

    3w cm

    Ans: _____ cm³

27. A car costing $ 120 000 was sold for $ 96 000.
What percentage of the original cost was the selling price?

Ans: _____ %

28. Mr. Zafar is less than 60 years old now. His present age is a multiple of 9.
Last year, his age was a multiple of 5. How old is he now?

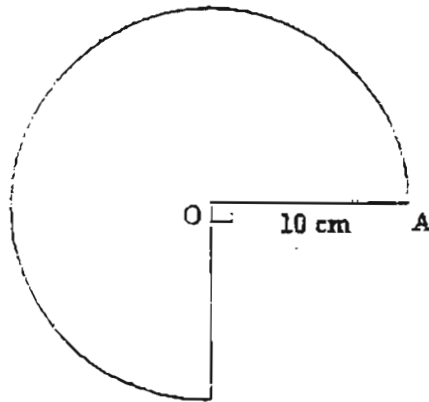Ans: _____ years old

29. Given that 10 800 + 3 300 = 14 100

Then 10.8 + ☐ = 14.1

Ans: _____

30. Find the total weight of 750g of meat and 5 mangoes if each mango has an
average weight of 0.42 kg
Correct your answer to one decimal place.

Ans: _____ kg

11

22

31. The figure below shows $\frac{3}{4}$ of a circle with O as its centre and AO its radius. Find the perimeter of the figure below in terms of π.
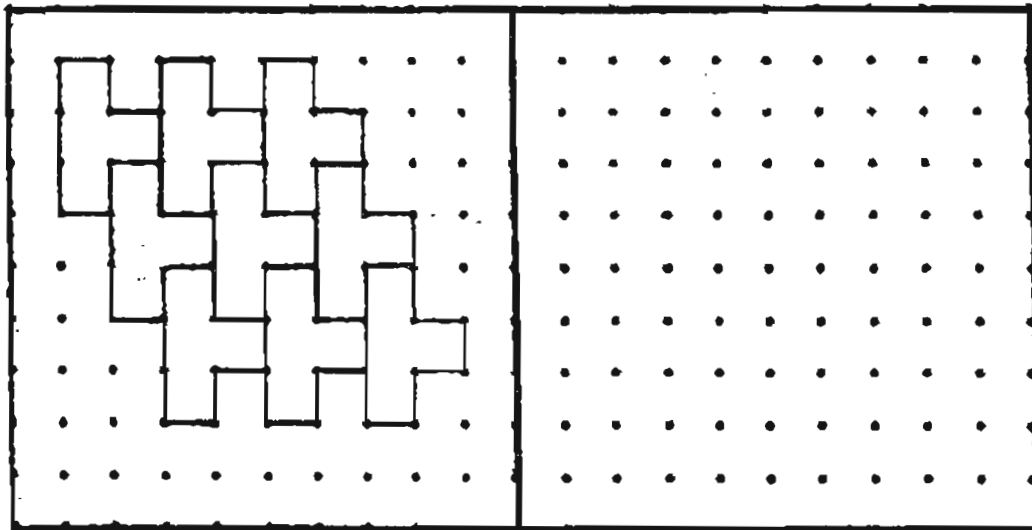

O⌐ 10 cm A

Ans: _____ cm

32. A rectangular tank measuring 60 cm by 50 cm by 40 cm is $\frac{2}{3}$ filled with water. Petra put 5 similar iron balls into the tank such that the water-level reaches the brim of the tank. Find the volume of each iron ball.
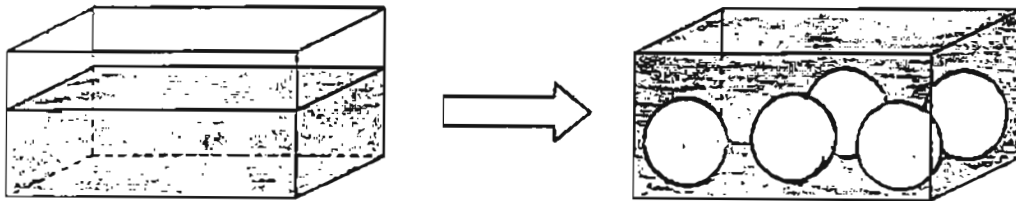
Ans: _____ cm^3

33. Identify the unit shape in the given tessellation. Use the same unit shape to show a different way of tessellating.

Tessellation A   Tessellation B

34. Mr Tay drove at an average speed of 92 km/h.
    How far would he have travelled in 15 minutes?

Ans: _____ km

35. 40% of the pupils in 6A are girls. If there were 18 boys, how many pupils were there in the class?
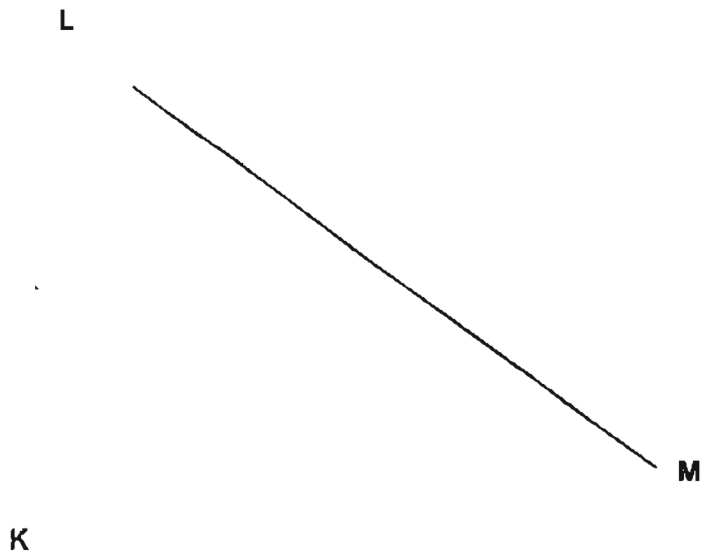
Ans: _____ pupils

13

Booklet B (55 marks)

For Q36 to Q50, show your working clearly in the space below each question and write your answers in the spaces provided.

The number of marks available is shown in the brackets [ ] at the end of each question or part question.

36. In the figure, LM is a straight line.

Construct a line perpendicular to LM passing through point K. [2]

L

M

K

26

37   The water rates of PUB charges for domestic users are given below:

First 20 m³	80 cents per m³
Next 20 m³	90 cents per m³
Above 40 m³	130 cents per m³

Mrs Lau's family used 47 m³ of water in June.
How much did she pay for her water bill?

Ans $ _____ [2]

38.   Mrs Chew had 20 large-sized carrots. If 4 of the carrots could make 3 glasses
      of carrot juice, how many glasses of the juice could she make with all the 20
      carrots?

Ans: _____ [2]

39.   Jim has a total of $27.50 in coins.
      If there are 13 more fifty-cent coins than ten-cent coins, how many fifty-cent
      coins does Jim have?

Ans: _____ [2]

40. In the figure below, BA is perpendicular to AG and BD is perpendicular to FC. AG and BE are straight lines. FD = DC and FB = BC, find ∠FBC.

<div align="right">
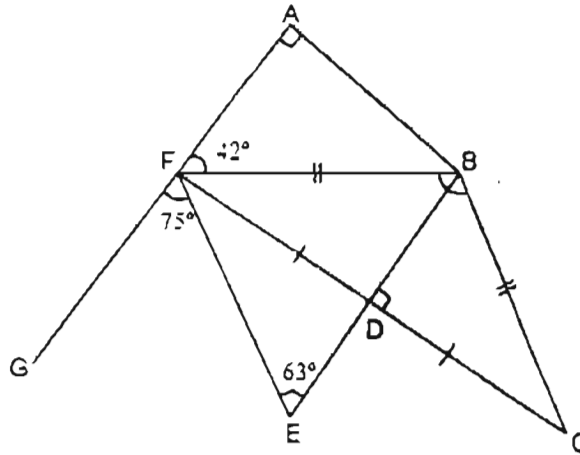
Ans: _____ [3]

</div>

41. k people hired a van for an excursion. The transport company charged a fixed amount of $34 and an extra $9 for each person.

(a) Find in terms of k, the cost of hiring the van.

(b) Mr Wee booked the van for the group and paid $150. How much change would he receive given that $k = 11$.

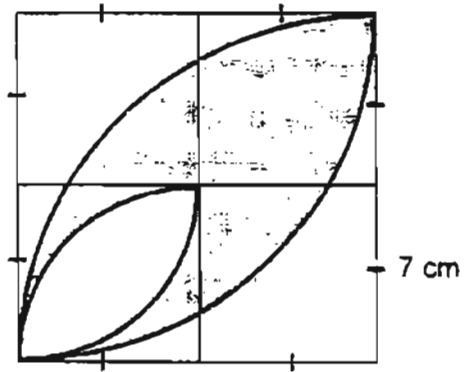<div align="right">

Ans: (a) _____ [1]

(b) _____ [2]

</div>

42.

Jennifer spent $\frac{1}{3}$ of her money on a watch. Her mother gave her $12 more.

Jennifer later spent $\frac{1}{3}$ of what she had on a dress.

After all her shopping, Jennifer had $57 left.

(a) Find the cost of the dress.

(b) How much money did Jennifer have at first?

Ans: (a) _____ [2]

(b) _____ [2]

39

43. The figure below is made up of 2 big quadrants and 2 small quadrants. Find the shaded area. Take $\pi = \frac{22}{7}$.

7 cm

Ans: _____ [4]

44. The graph below shows the number of participants in 4 different sports.
Study the graph carefully before you answer the questions.

(a) What fraction of the participants in Badminton were men?
(b) What percentage of the total number of participants in Bowling and Basketball were women?
(c) If the average number of participants in all four sports was 78, how many women had participated in Tennis?
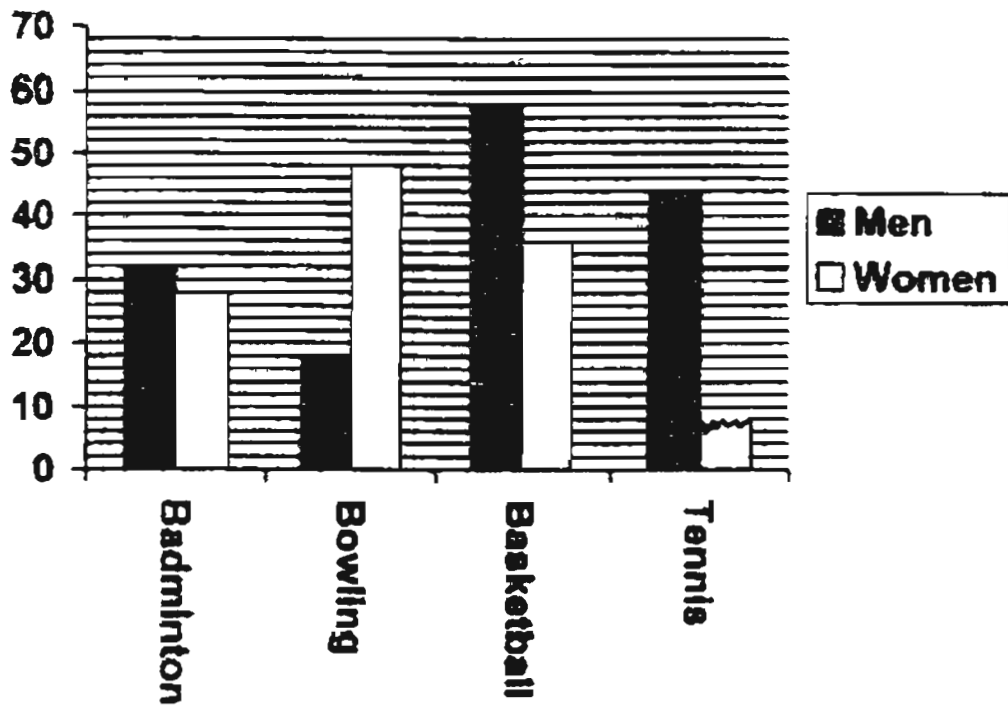
Ans: (a) _____ [1]

(b) _____ [1]

(c) _____ [2]

45. Town A and Town B were 600 km apart. At 10.45 a.m., a lorry traveling at a uniform speed left Town A for Town B. At the same time, a taxi set off from Town B to Town A at a uniform speed which was 12 km/h faster than that of the lorry's. The two vehicles met at 3.45 p.m. Find the speed of the taxi.

Ans: _____ [4]

46. Alice, Belinda and Cathy teamed up to participate in a Mathematics quiz. At the end of the quiz, Alice scored $\frac{1}{4}$ of the total number of points scored by the team. The rest of the points were scored by Belinda and Cathy in the ratio 5:3. If the team had scored a total of 96 points,

(a) how many more points did Belinda score than Alice?

(b) express as a ratio in its simplest form, the number of points scored by Cathy to the total number of points scored by the team.
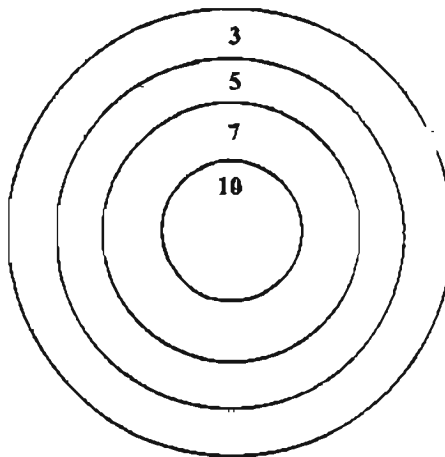
Ans: (a) _____ [2]

(b) _____ [2]

47. For every round in a dart game, three darts are thrown at the target as shown below and the points are added up. Each player has 5 rounds. The winner is the one with the highest total number of points scored after the 5 rounds.

(a) If only 2 darts hit the target, how many <u>possible</u> even number total score could one get after one round?

(b) If all the darts hit the target, what is the difference between the highest possible odd number score and the lowest possible odd number score in the game?

Ans: (a) _____ [2]

(b) _____ [3]

48. Rahim used 7 litres of syrup to make a drink. To every litre of syrup, Rahim added 4.6 litres of water. The drink was poured into three 1-litre bottles and the rest into cups of 250 ml.

(a) How many cups of the drink would there be?

(b) If the cups of drink were sold at $0.65 a cup. how much money would be collected if all but two cups were sold?

Ans: (a) _____ [3]

(b) _____ [2]

49. Nicole places a caterpillar on a piece of paper. She notices that the caterpillar covers the same area of the paper when it is curled up as in Position A or when it is straightened up as in Position B. Nicole also discovers that the shape formed in Position A is made up of four semi-circles and the shape formed in Position B is made up of two semi-circles and one rectangle.

(a) What area of the paper is covered by the caterpillar?

(b) What is the length of the caterpillar when it is in Position B?

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

Position A

3 cm

Position B
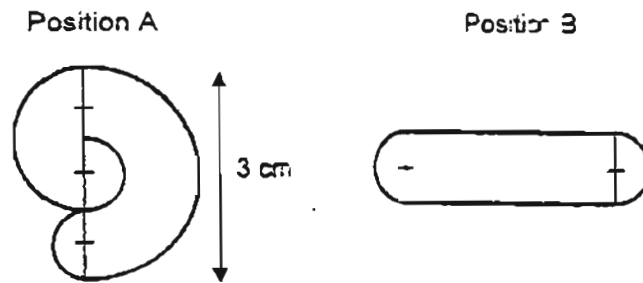
Ans: (a) _____ [2]

(b) _____ [3]

50 The usual price of a NONY television set was $4 000. At the annual year-end sale, it was sold at a discount of 60%. As a result, the shopkeeper incurred a loss of $300.

(a) What was the cost price of the television set?

(b) What percentage discount should the shopkeeper give on the usual price if a profit of $300 on the television set was to be made?

Ans: (a) _____ [2]

(b) _____ [3]

The End

Answer key P6 Prelim 2004

Booklet A1 (25 marks)

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

Booklet A2 (20 marks)

16.	61
17.	$3\dfrac{4}{7}$
18.	7.4
19.	3 cm
20.	729 cm³
21.	30%
22.	*
23.	18°
24.	2.11 litres
25.	3 : 1 : 5
26.	9072 cm²
27.	80%
28.	36 years old
29.	3.3
30.	2.9 kg

31.	(15 π + 20) cm
32.	8000 cm³
33.	*
34.	23 km
35.	30 pupils

22.
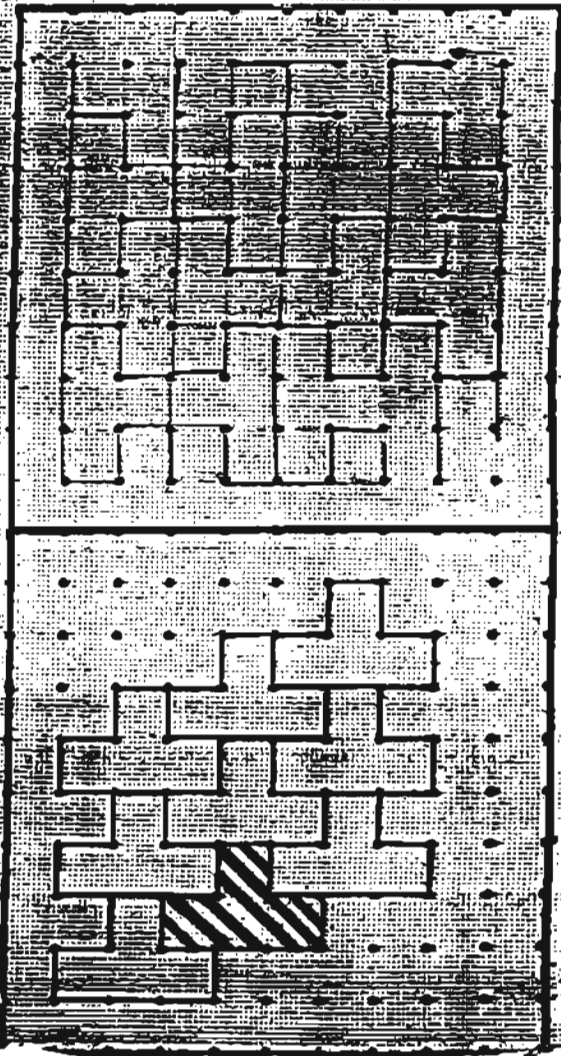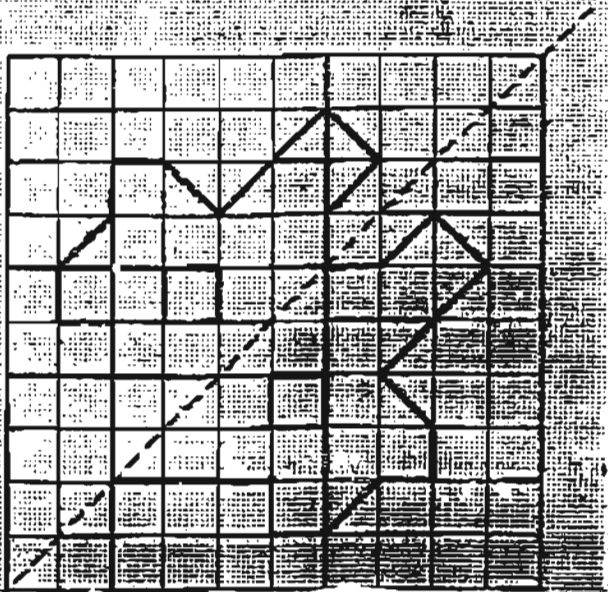
36. ensure the line is perpendicular **M1**

mark out right angle

M1

B1 20
80 × 20 = $16
Next 20: 90 × 20 = $18
Next: 130 × 7 = $9.10
Total: 16 + 18 + 9.10 = $43.10 **M1 A1**

(120 ÷ 4) × 3 = 15 glasses **M1**

			Total	
80	10			X
21 / 10.60	8 / 0.80		$11.30	X
28 / 14.00	15 / 1.50		$15.50	X
42 / 24.00	35 / 3.50		$27.50	✓

90 − 63 = 27 **M½**
180 − 27 − 75 = 42 = 36 **M1**
180 − 36 − 36 = 108° **M½ A1**

80 × 63 ÷ 42 = 63 **M½**
63 − 54 **M½**
54 = 108° **M½ A1**

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41. a) cost → $34 + ($9 × k) = $(34 + 9k)   **A1**

b) k = 11
cost = $34 + 9(11) = $133
a plate: $150 − $133 = $17   **M1 A1**

42.
4 → $57 − $8 = $49   **M1**
10 → $49 ÷ 4 = $12.25
(a) dress → $12.25 × 2 + 4 = $28.50   **A1**
(b) 12.25 × 9 = $110.25   **M1 A1**

43.
Area of small square → 7 × 7 = 49 cm²
Area of big square A → 4 × 49 = 196 cm²   **M1**

Area A for the small square = Area B for the small square **(M1)**
Area A → $\frac{1}{4}\pi r^2 = \frac{1}{4} \times \frac{22}{7} \times 7 \times 7 = 38.5$ cm²
Area B for the small square = 2 × (49 − 38.5) = 10.5 cm² × 2 = 21 cm²
Area C for the small square → 49 − 21 = 28 cm²
Area C for the big square → 4 × 28 = 112 cm²
Area of the shaded part → 112 − 28 = 84 cm²   **(A1)**

44.

(a) $\dfrac{32}{60} = \dfrac{16}{30} = \dfrac{8}{15}$ (A1)

(b) $\dfrac{84}{160} \times 100\% = \dfrac{105}{2}$

$= 52\dfrac{1}{2}\%$ (A1)

(c) Total $\rightarrow 78 \times 4 = 312$

$312 - (32 - 28 - 18 - 48 - 58 - 38 - 44)$ (M1)

$= 312 - 264$

$= 48$ (A1)

46.

Alice's score $\rightarrow 96 \div 4 = 24$ ———— M½

$B + C = 96 - 24 = 72$

1 unit ——— $72 \div 8$

$= 9$ marks

∴ Belinda $\rightarrow 5 \times 9$

$= 45$ marks ———— M½

$45 - 24 = 21$ marks ———— A1

a) Belinda scored 21 more marks than Alice.

Cathy ——— $3 \times 9 = 27$ ———— M1

	Cathy	Total
	27	96
	9	32

(b) A1

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47. a)

$7 + 7 = 14$
$5 + 7 = 12$
$5 + 5 = 10$
$3 + 3 = 6$
$3 + 5 = 8$
$3 + 7 = 10$
$10 + 10 = 20$

There are 6 possible even number scores $\rightarrow 30 + 10 + 30 + 30 + 2 + 7 = 112$ A1

(b) Highest odd number score $\rightarrow 30 + 10 + 30 + 30 + 2 + 7 = 112$ M1
Lowest odd number score $\rightarrow 9 + 10 + 9 + 9 + 0 + 45 = 102$

Difference $= 147 - 45 = 102$

*any logical heuristic used.

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48. $7 + 4.6 \times 7 = 39.2$ litres ———— M½
$39.2 \div 3 = 36.2 \ell = 36200$ ml M1
a) $36200 + 250 = 144.8$ cups ———— M1
≈ 144

no. of cups sold $= 144 - 2 = 142$

b) sum collected $= 0.65 \times 142 = \$92.30$ ———— M½ A1

(i)

2.45 a.m. to 3.45 p.m. $\rightarrow 5$ h ———— M½
5 h $\rightarrow 5 \times 12$ km faster
$= 60$ km faster ———— M1

1300 ÷ 60 = 540 km
540 ÷ 2 = 270 km
270 + 60 = 330 km ———— M1

The taxi travelled 330 km

Speed of the taxi $= 330 \div 5$
$= 66$ km/h ———— A1½

49.

radius of small circle = 3 ÷ 6 = ½ cm
radius of medium circle = ½ + ½ = 1 cm
radius of big circle = ½ + ½ + ½ = 1½ cm

area of big semi-circle = ½ × $\dfrac{22}{7}$ × 1½ × 1½ = $3\dfrac{15}{28}$ cm²

area of medium semi-circle = ½ × $\dfrac{22}{7}$ × 1 × 1 = $1\dfrac{4}{7}$ cm²

area of small semi-circle = ½ × $\dfrac{22}{7}$ × ½ × ½ = $\dfrac{11}{28}$ cm²

(a) area of caterpillar = $3\dfrac{15}{28}$ + $1\dfrac{4}{7}$ + $\dfrac{11}{28}$ = 5½ cm² -------- M1 A1

Area of 2 semi-circles = $\dfrac{22}{7}$ × ½ × ½ = $\dfrac{11}{28}$ cm²

Area of rect = 5½ - $\dfrac{11}{28}$ - $\dfrac{11}{28}$ = $4\dfrac{5}{7}$ cm²

Length of rect = $4\dfrac{5}{7}$ + 1 = $4\dfrac{5}{7}$ cm   M1

(b) Length of caterpillar = $4\dfrac{5}{7}$ + 1 = $5\dfrac{5}{7}$ cm   M1 A1

50.

Discounted Price   → 4 000 × 0.4 = $1 600   (M1)
Cost price   → 1 600 + 300 = $1 900   (A1)

To earn a profit of $300,
New discounted price → 1 900 + 300 = $2 200   (M1)

Percentage discount
(that we can give)   → $\dfrac{(4000-2200)}{4000}$ × 100%   (M1)
= 45%   (A1)