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NANYANG PRIMARY SCHOOL
PRELIMINARY EXAMINATION
2006

PRIMARY 6
MATHEMATICS

DURATION: 2 HOURS 15 MINUTES

Booklet A	/ 20
Booklet B	/ 30
	/ 50

Total:	/ 100
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Name: _____ ()

Class: Primary 6 ()

Date: 22 August 2006

Parent's Signature: _____

WRITE YOUR INDEX NO. IN THE BOXES AT THE TOP RIGHT HAND CORNER.

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

FOLLOW ALL INSTRUCTIONS CAREFULLY.

ANSWER ALL QUESTIONS.

Booklet A

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 Which of the following is the longest?
- (1) 3420 cm
 - (2) 295 m
 - (3) 1 km 20 m
 - (4) 1.08 km
- 2 Which of the following measurements may not be possible?
- (1) A shoe box of dimensions 28 cm × 15 cm × 9 cm
 - (2) A baby with mass of 4000 g
 - (3) A 5-litre bottle of washing detergent
 - (4) A standard Singapore national flag with length and breadth in the ratio of 5 : 2
- 3 What is the sum of all the common factors of 45 and 60?
- (1) 9
 - (2) 23
 - (3) 24
 - (4) 33

4 What is the value of $\frac{1}{3} \times 2 - \frac{1}{4} \div 3$?

(1) $\frac{1}{12}$

(2) $\frac{5}{36}$

(3) $\frac{5}{12}$

(4) $\frac{7}{12}$

5 What is the smallest possible whole number that can be placed in the box such that the value of $(11 \times 8 + 0.1 \times \square)$ is greater than 888?

(1) 8001

(2) 8000

(3) 801

(4) 800

6 Given that the operation $*$ is such that $a * b = \frac{a+b}{a-b}$ where a and b are whole numbers, what is the value of $4 * 2$?

(For example: $3 * 1 = 2$)

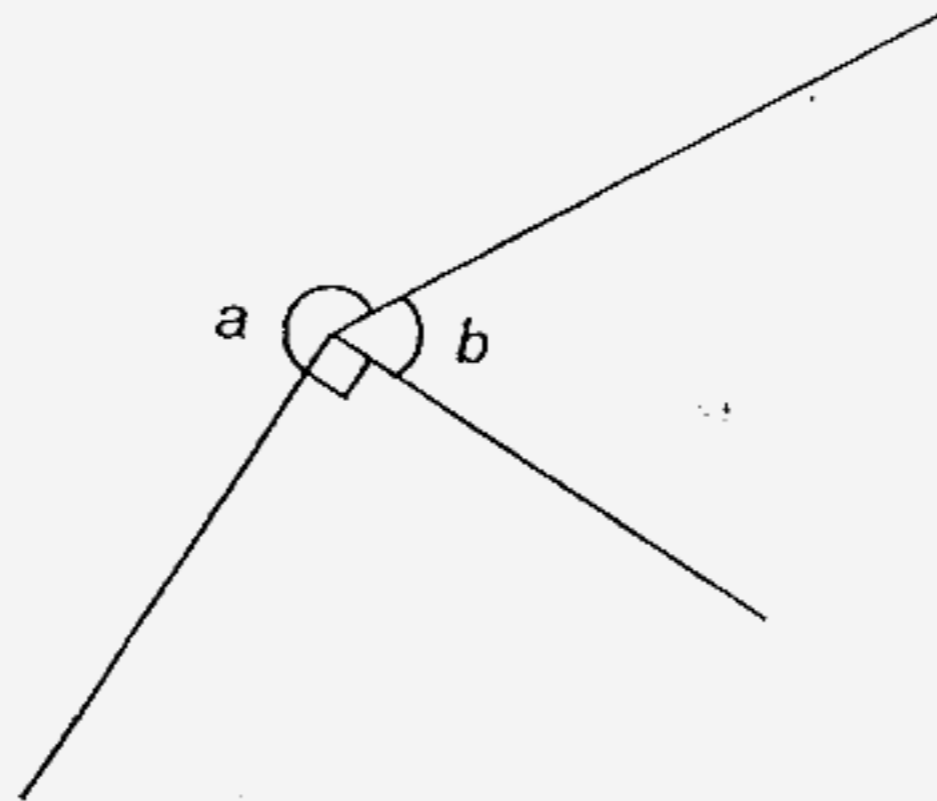
(1) 0

(2) 2

(3) 3

(4) 8

- 7 The figure below is not drawn to scale. If $\angle b$ is $\frac{1}{4}$ of $\angle a$, find $\angle a$.



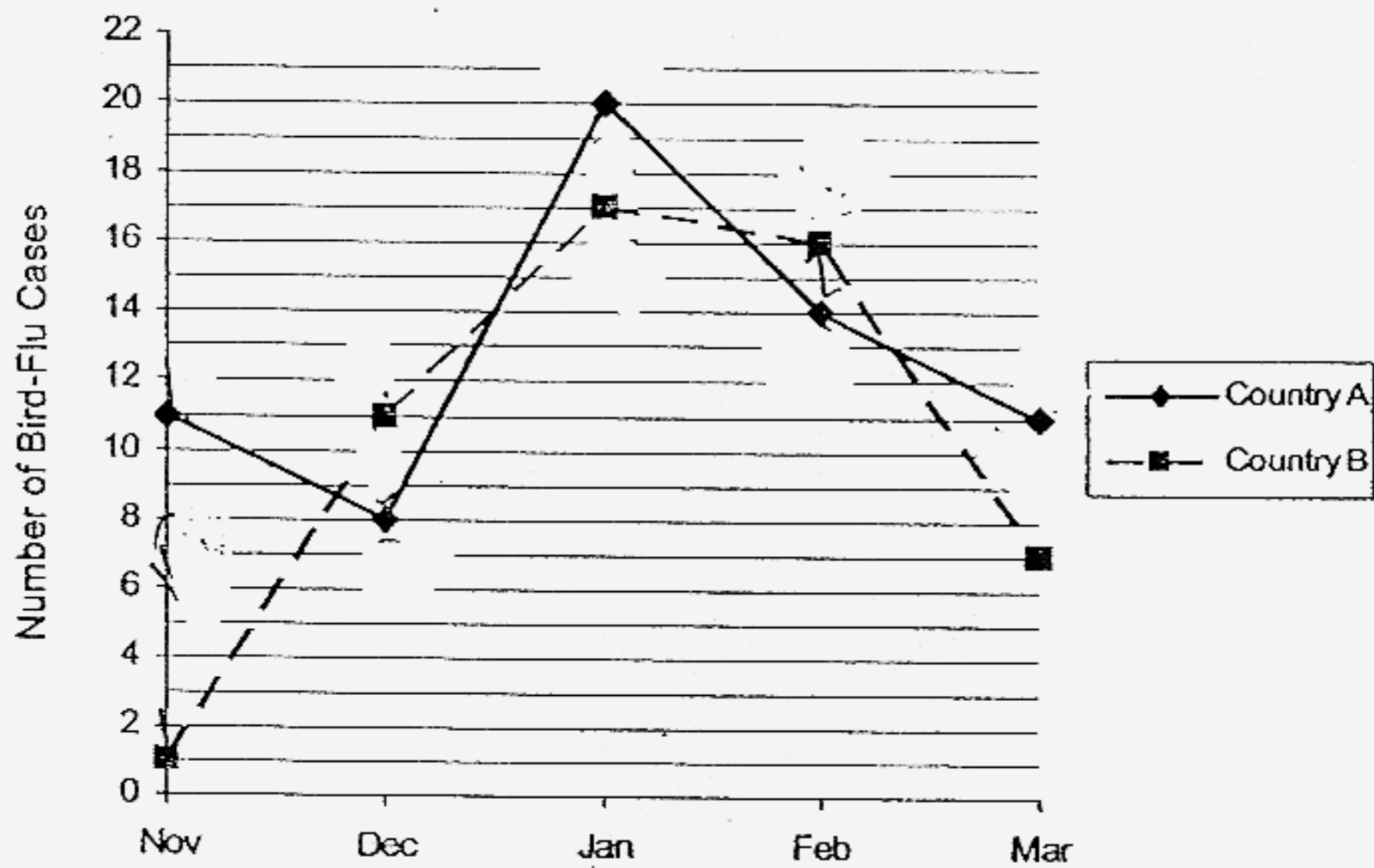
- (1) 54°
(2) 108°
(3) 144°
(4) 216°
- 8 At a fruit stall, the ratio of the number of apples to the number of pears is $9 : 5$. The ratio of the number of pears to the number of oranges is $10 : 3$. If the fruit stall has 120 pears, how many more apples than oranges are there?

- (1) 96
(2) 150
(3) 180
(4) 216

9 What is the missing number in the box?

$$6 : 9 = 8 : \square$$

- (1) 12
 - (2) 14
 - (3) 15
 - (4) 18
- 10 The graph shows the number of reported bird-flu cases in Country A and Country B from November 2005 to March 2006.



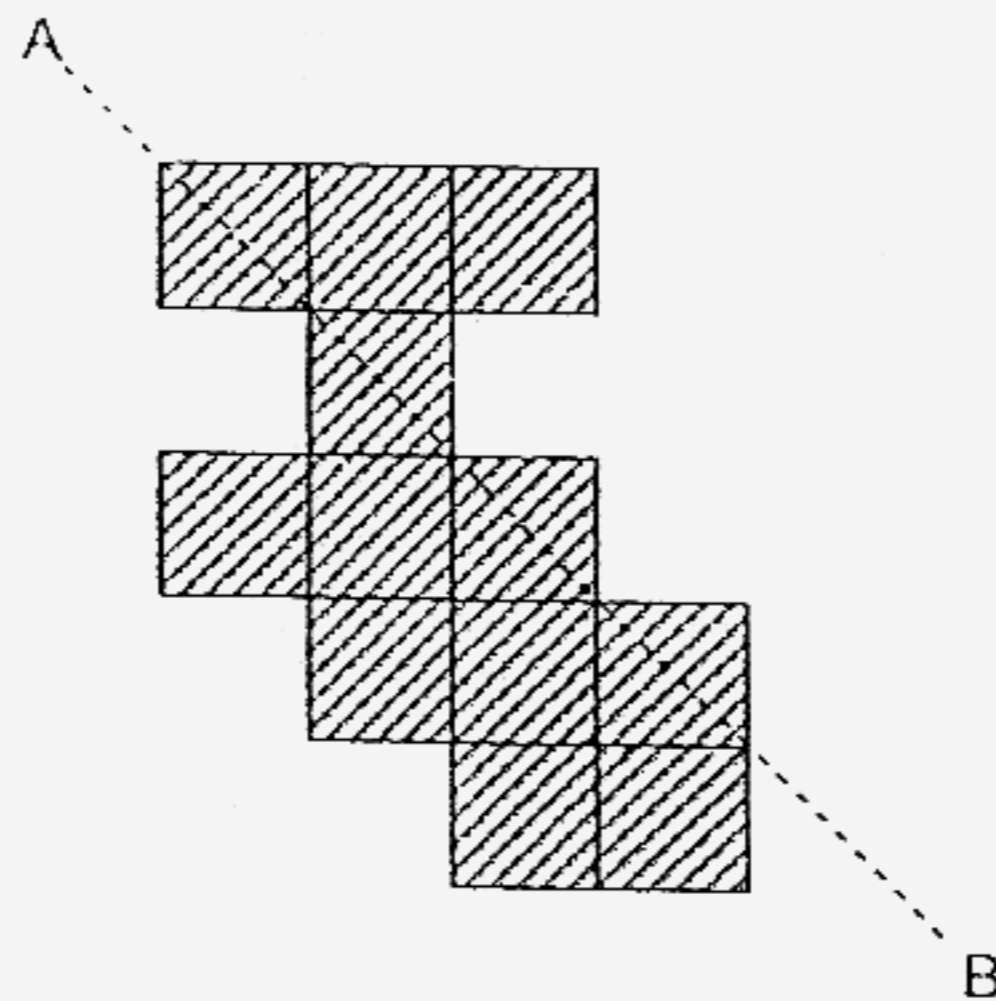
In which two months were the difference in the number of reported bird-flu cases in the two countries the same?

- (1) December and January
- (2) December and February
- (3) January and February
- (4) January and March

- 11 Ali set off from his house at 11.00 a.m. He spent 45 minutes to travel to the swimming pool. He swam for 1 hour and 15 minutes and showered for half an hour. If he spent the same amount of travelling time on the return journey, at what time would he reach his house?

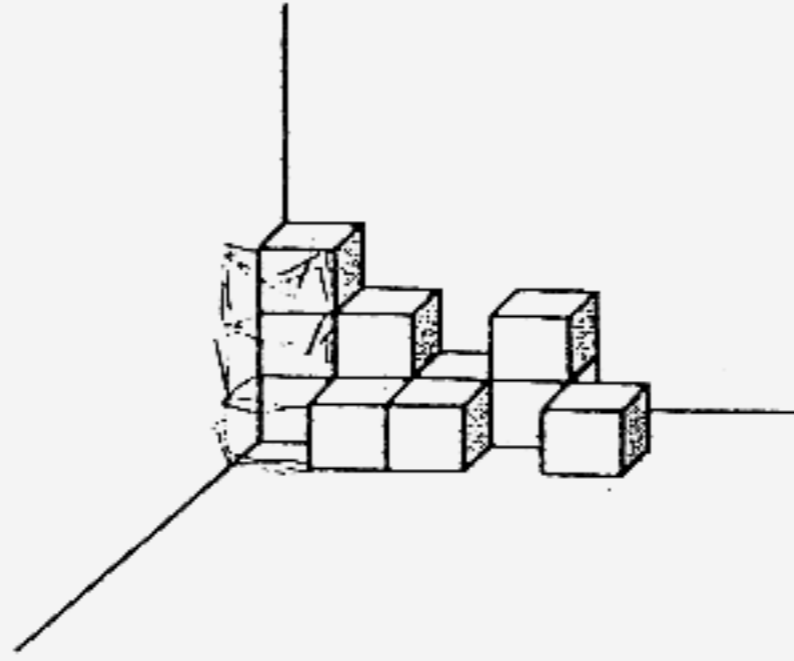
- (1) 03 15
- (2) 13 30
- (3) 14 15
- (4) 14 35

- 12 The figure below shows 12 identical squares. What is the smallest number of squares that must be removed so that the line AB becomes a line of symmetry?

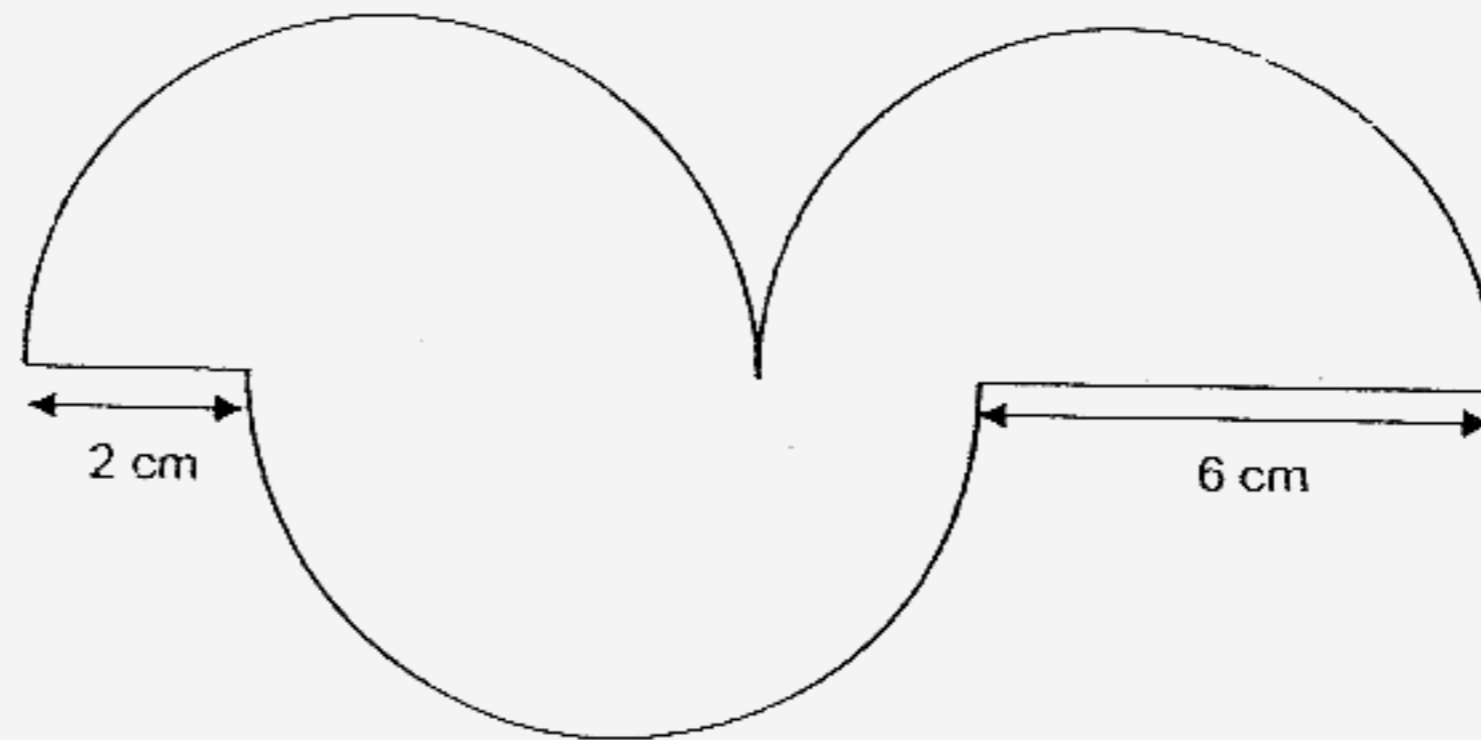


- (1) 8
- (2) 6
- (3) 5
- (4) 4

- 13 The figure shows a solid consisting of identical cubes. What is the smallest number of cubes to be added to the solid to form a cuboid?



- (1) 34
 (2) 20
 (3) 19
 (4) 11
- 14 A piece of wire is used to form the following figure which consists of 3 identical semi-circles. Find the length of the wire used.



- (1) $(4\pi + 8)$ cm
 (2) $(6\pi + 8)$ cm
 (3) $(12\pi + 8)$ cm
 (4) $(24\pi + 8)$ cm

- 15 If each box in the table below is to be filled with the numbers 1, 2, 3 or 4, such that the numbers are not repeated in any row, column or diagonal, which number would A represent?

3			
	1		
2		4	
		A	

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

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Booklet B

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 What is the missing number in the box?

$$7\,238\,419 = \square \times 100$$

Ans: _____

17 Find $2\frac{3}{4} - 1\frac{5}{6}$.

Ans: _____

18 Edeline set off from Town A at 6.10 p.m. and arrived at Town B at 9.10 a.m. the next day. The towns are 1200 km apart. Find her average speed.

Ans: _____ km/h

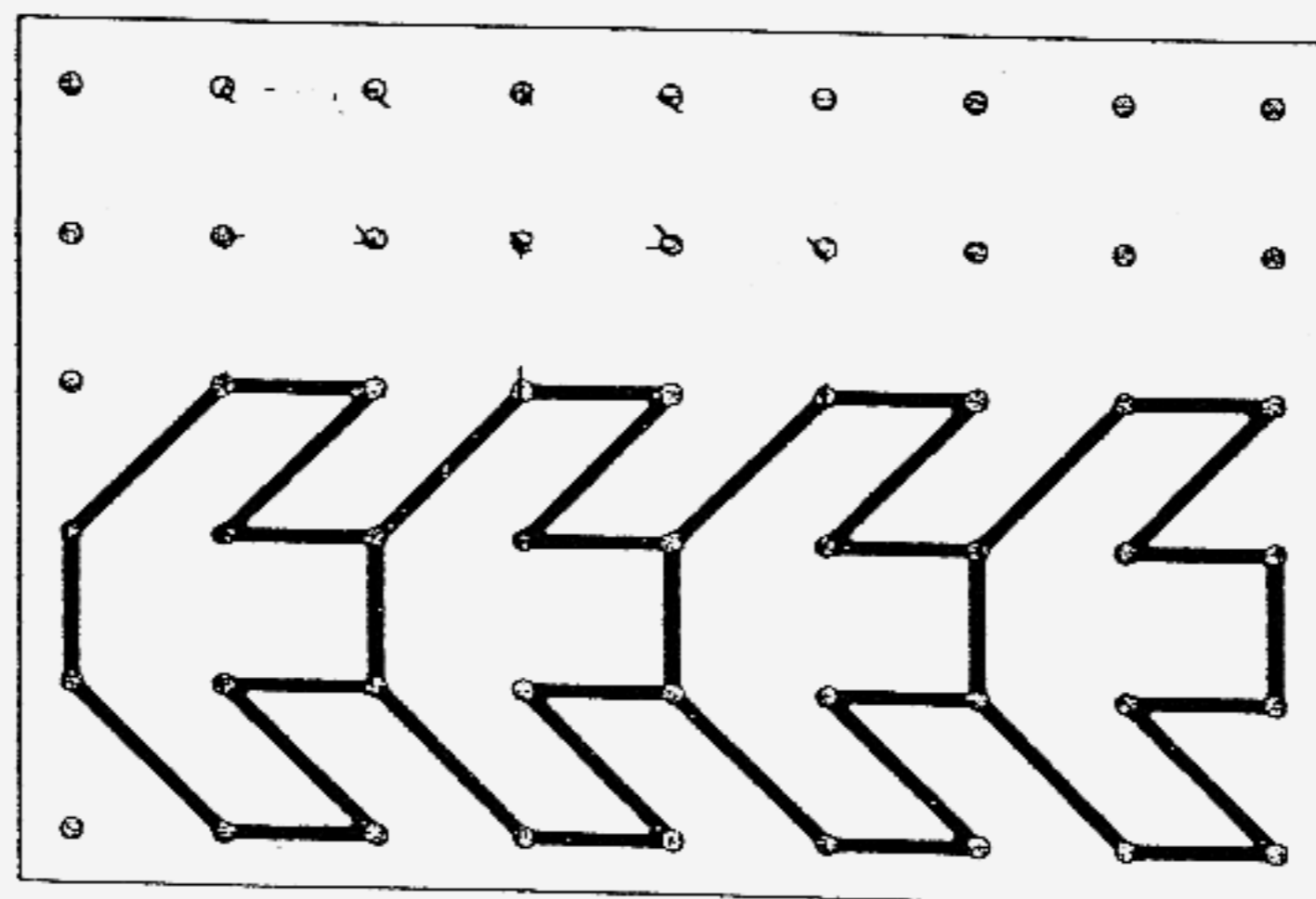
- 19 Mandy typed at a rate of 100 words per minute. How many words could she type in an hour?

Ans: _____

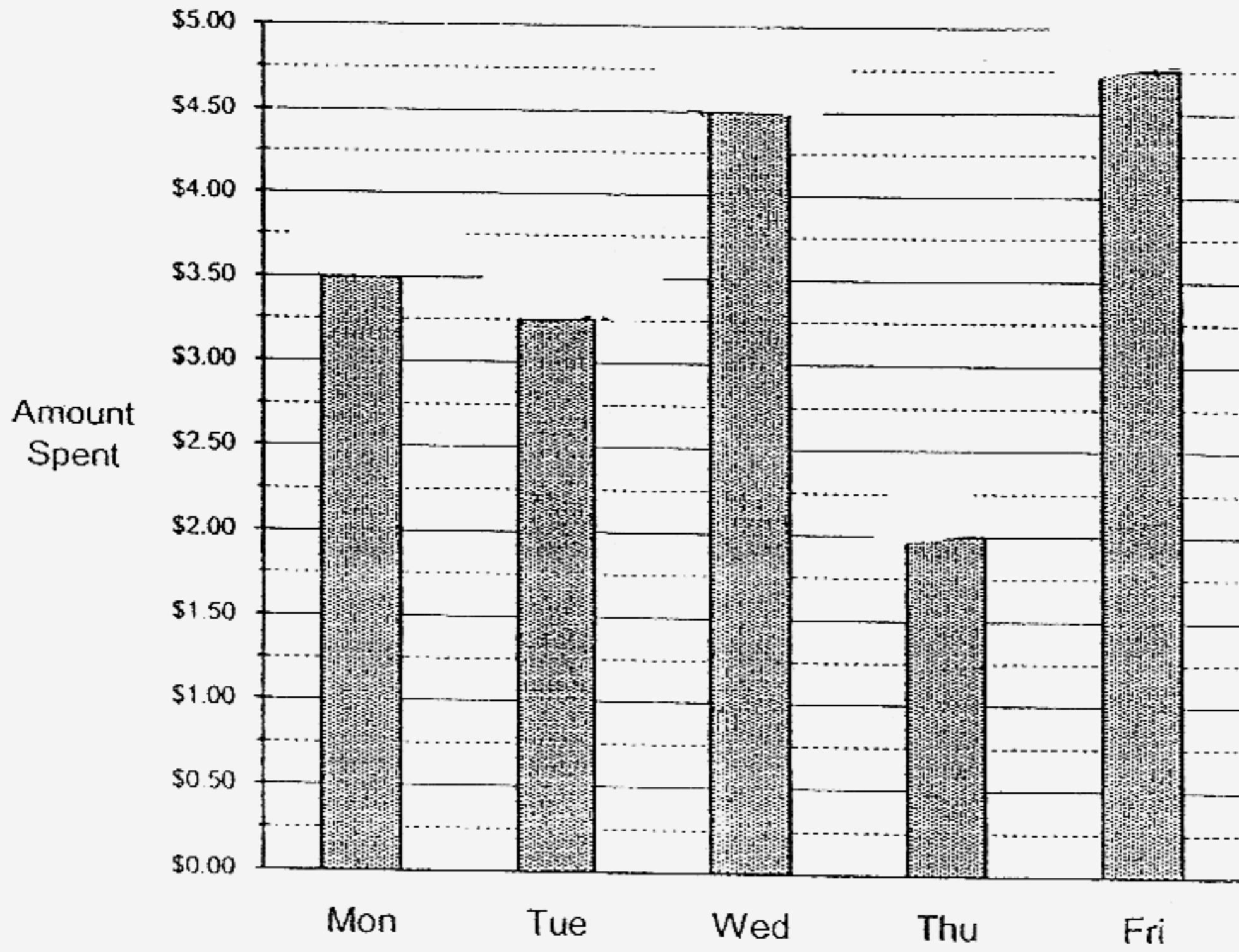
- 20 Mr Koh stayed up to watch a soccer match which lasted 1 h 45 min. He finished watching the match at 5.00 a.m. At what time did Mr Koh start watching the soccer match?

Ans: _____ a.m.

- 21 The pattern in the box shows part of a tessellation. Extend the tessellation by drawing **two** more unit shapes in the space provided in the box.



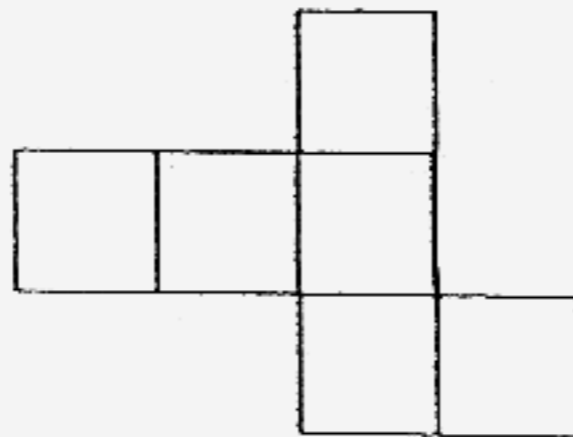
22 The graph shows the amount of money Jing Hua spent over five days.



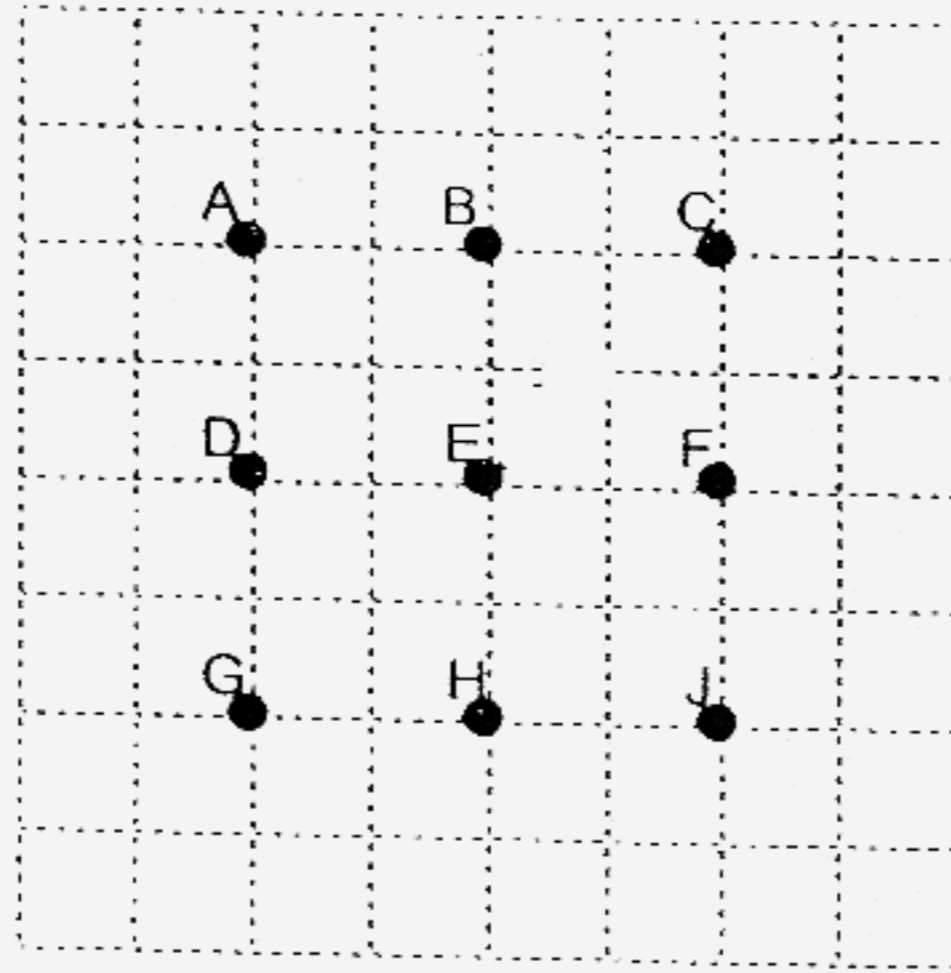
Jing Hua had \$20 at first. How much money did he have at the end of Wednesday?

Ans: \$ _____

23 Complete the net shown below so as to make it the net of a cube.

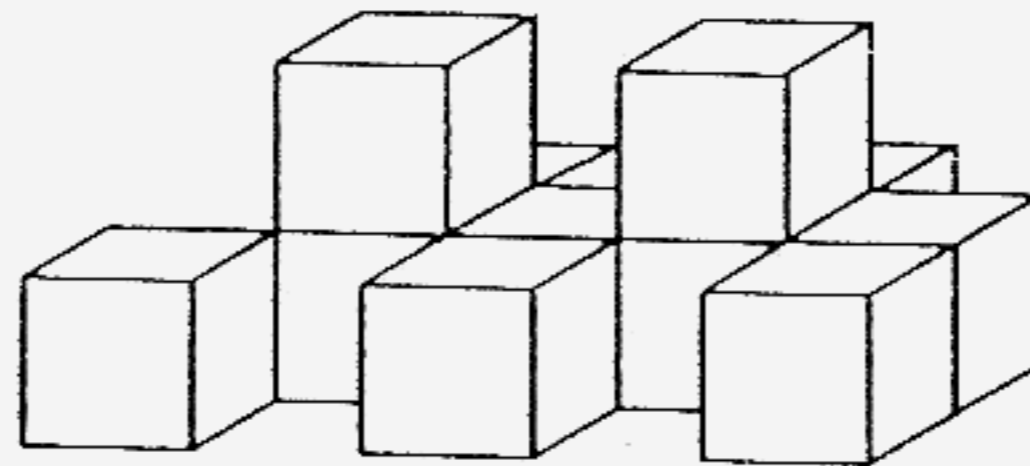


- 24 Freddie is standing at E and facing C. He turns 135° anticlockwise. He then makes a right angle turn in a clockwise direction. Where is Freddie facing now?

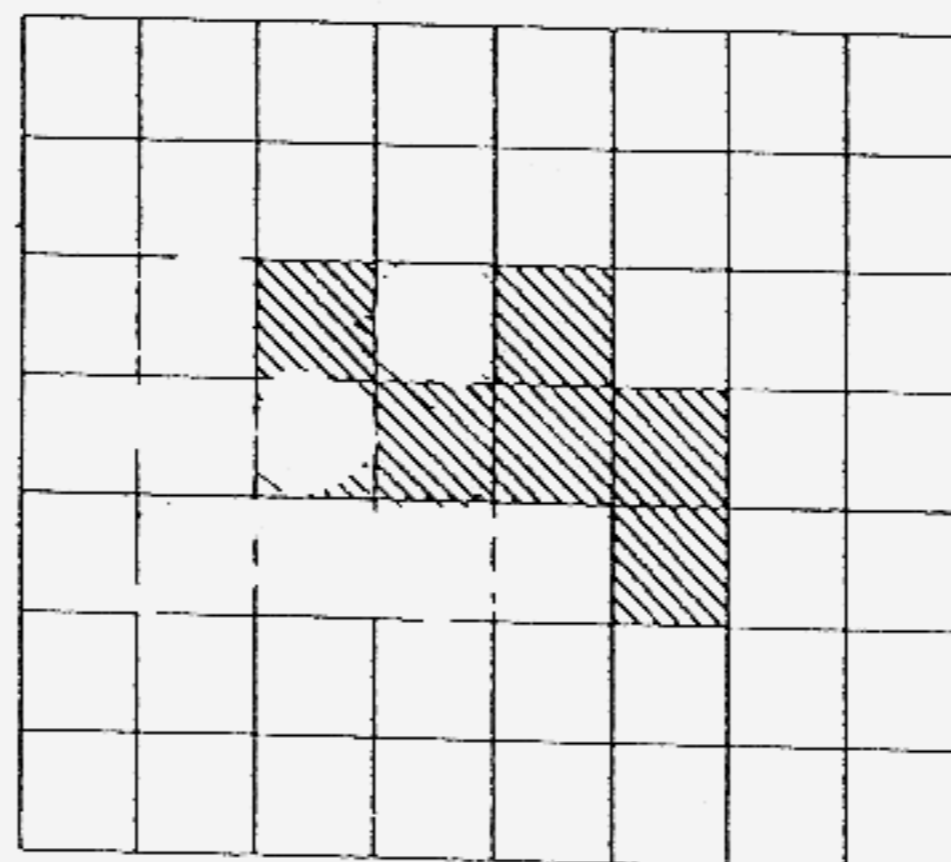


Ans: _____

- 25 The solid below is made up of 12 identical cubes. In the grid provided, complete the top view of the solid by shading the relevant squares.



Grid



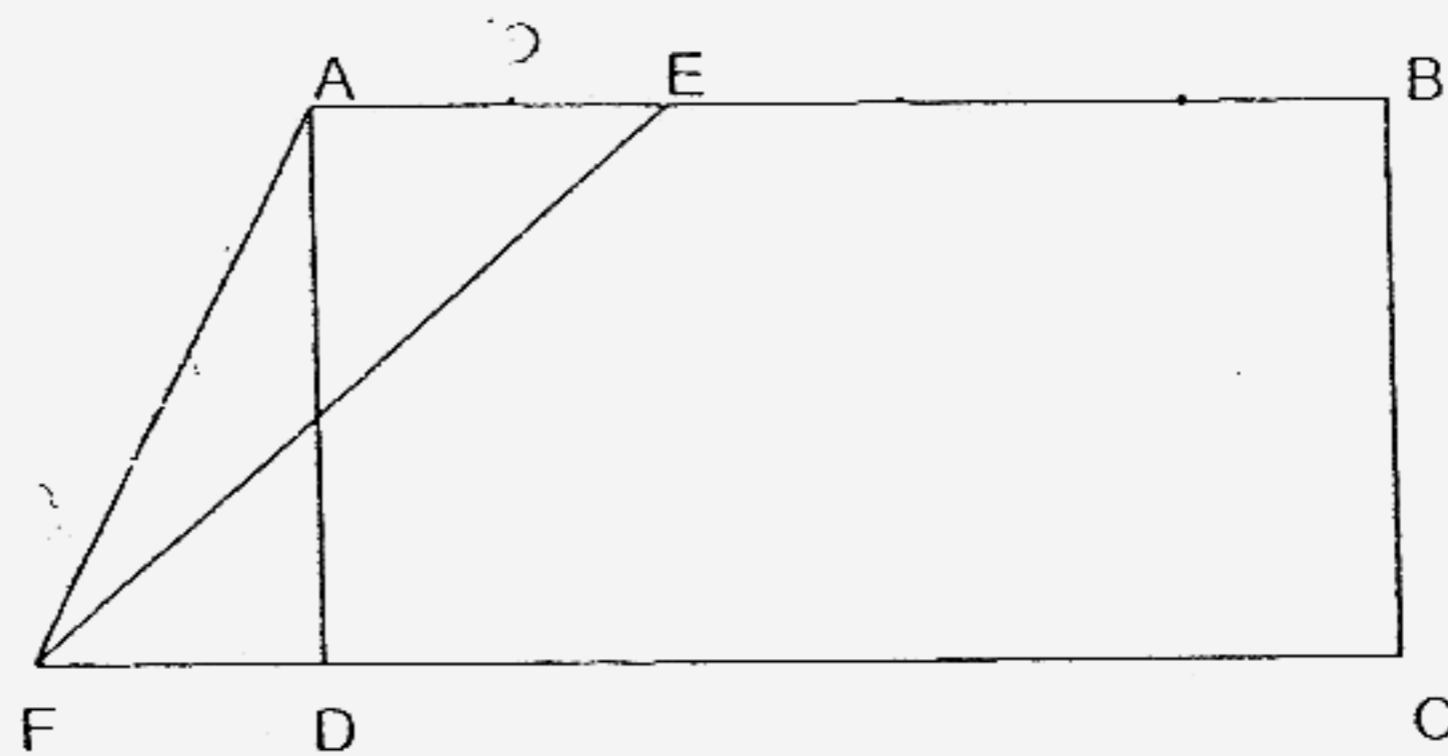
Questions 26 to 35 carry 2 marks each. Show your working clearly in the space below each question and write your answers in the spaces provided. For questions which require units, give your answers in the units stated.

(20 marks)

- 26 Fill in the boxes with the operation symbols (+, -, × or ÷) to make the statement true. Use each symbol only once.

$$(4 \square 4 \square 4) \square 4 \square 4 = 1$$

- 27 The figure below is made up of Rectangle ABCD and two triangles AEF and ADF. The ratio of the length of AE to the length of EB is 1 : 2. AE = 5 cm, FD = 4 cm and BC = 8 cm. Find the area of ABCF.

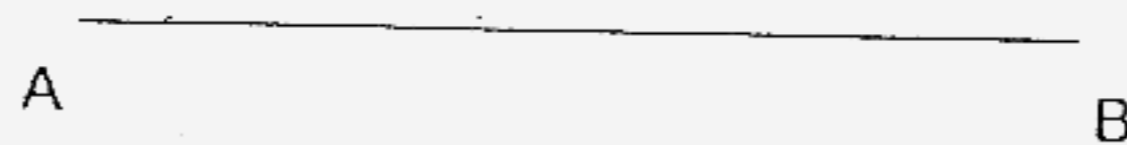


Ans: _____ cm²

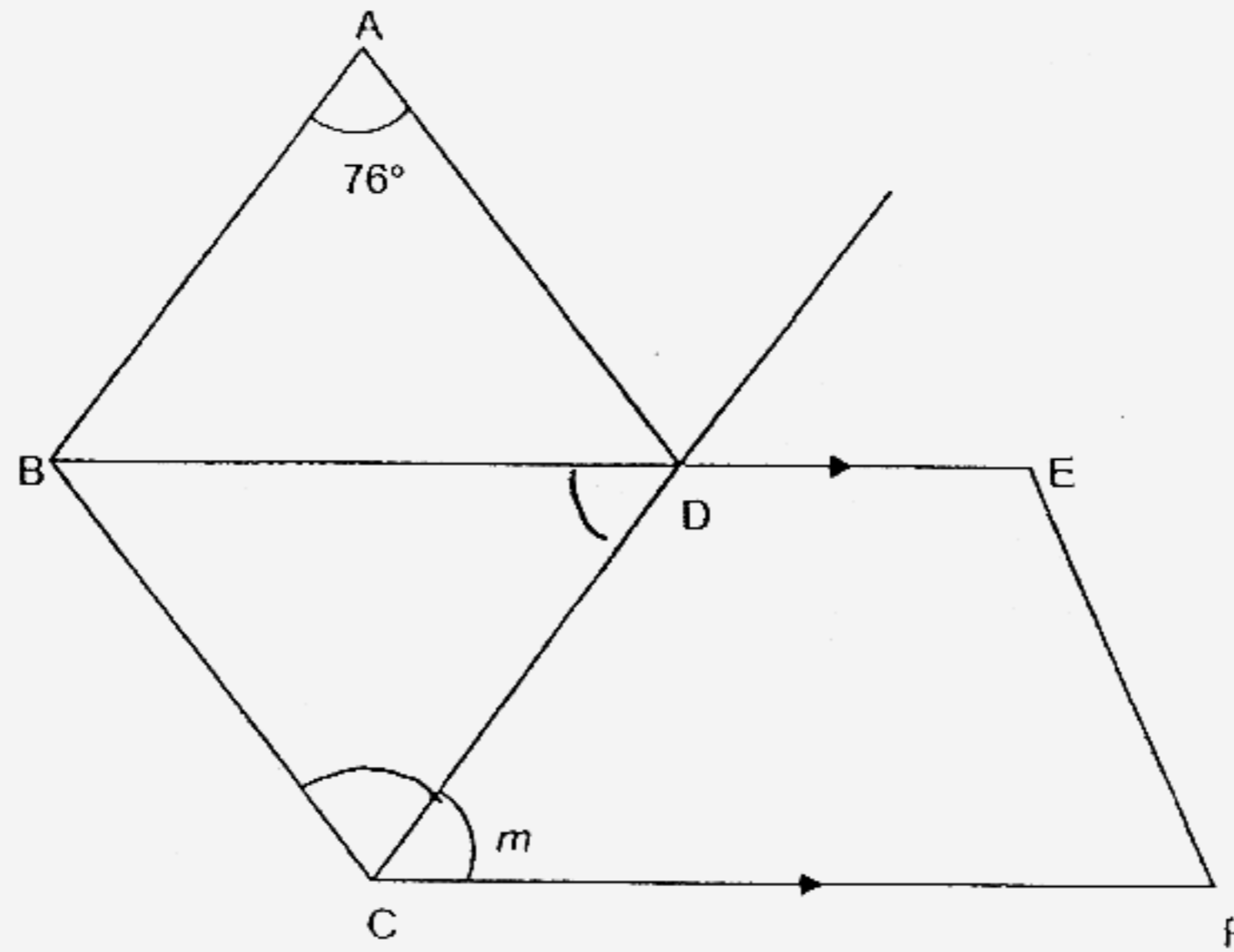
- 28 A basket with 1 shot put has a total mass of 2.8 kg. The same basket holding 6 identical shot put has a total mass of 14.3 kg. Find the mass of the basket when it is empty.

Ans: _____ kg

- 29 The figure shows a line AB. Draw an angle such that $\angle CAB = 55^\circ$ and $AC = 8$ cm.



- 30 ABCD is a rhombus and BEFC is a trapezium. Find $\angle m$.

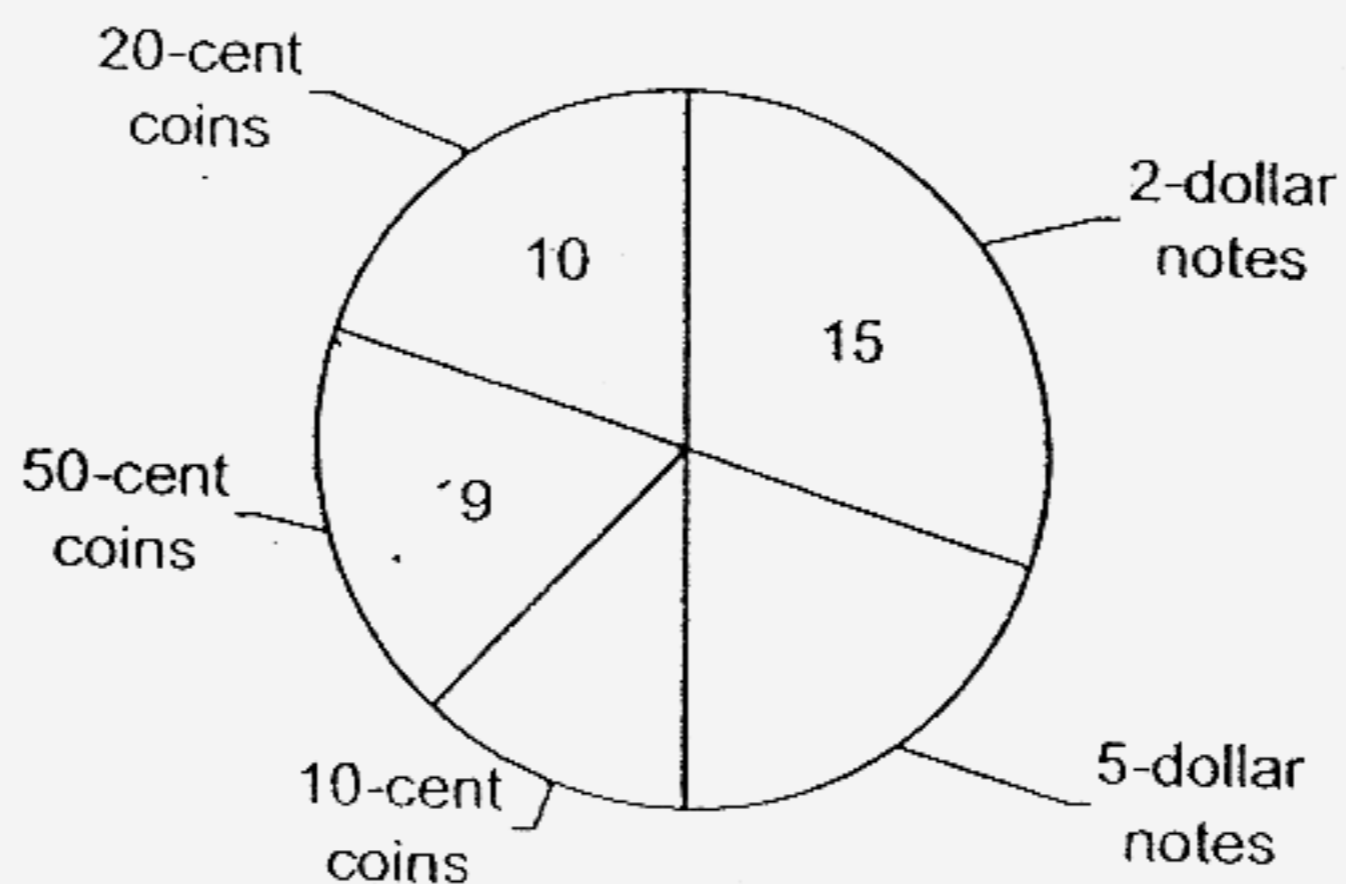


Ans: _____°

-
- 31 Five pupils sat for a test and the lowest score obtained was 10 out of 50. Find the highest possible average score of these pupils.

Ans: _____

- 32 The pie chart shows the number of coins and notes that Meilin has in her piggy bank.



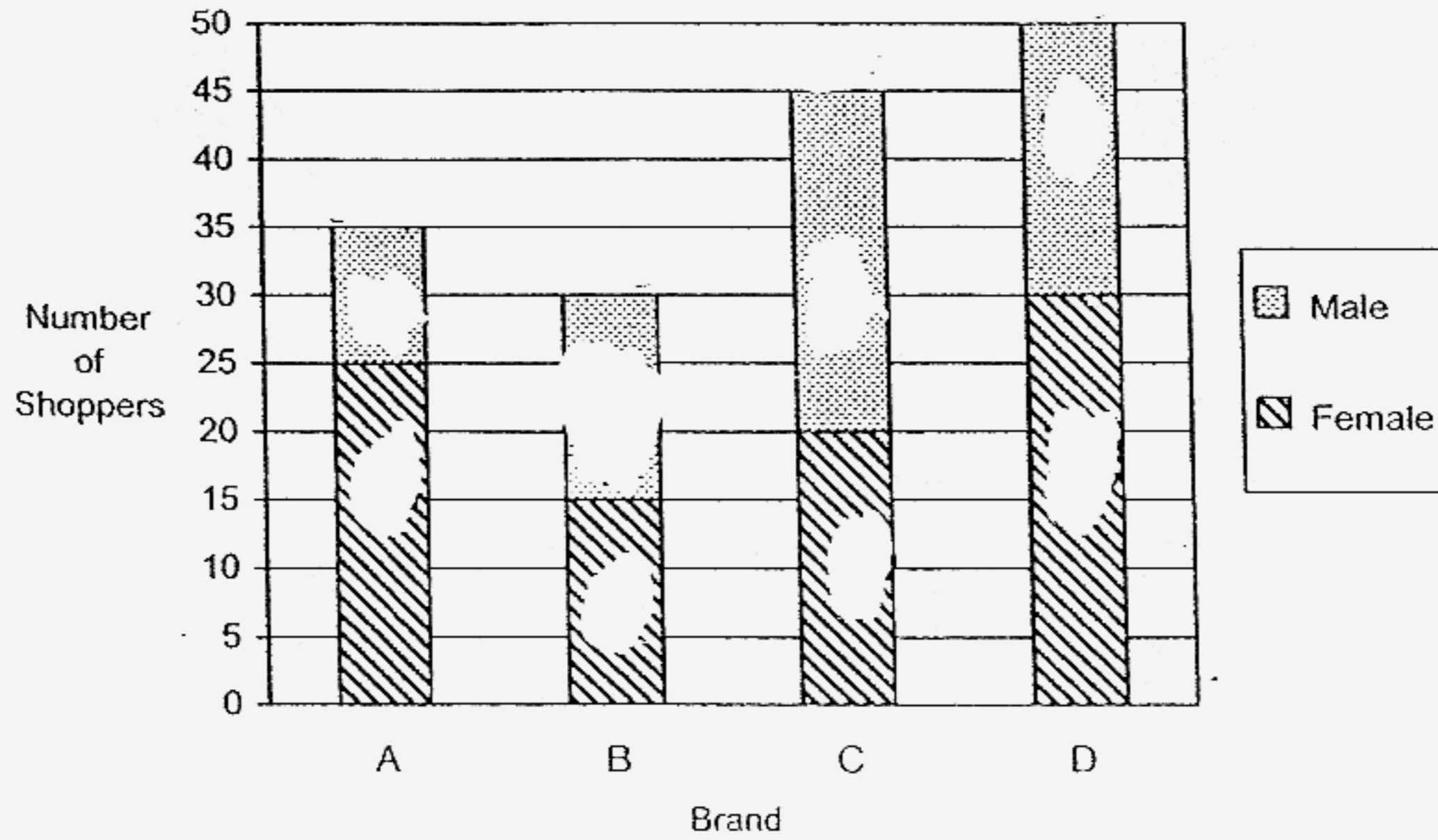
- (a) Complete the table using the information given in the pie chart.

Denomination of Money	Number
10-cent coins	
20-cent coins	10
50-cent coins	9
2-dollar notes	15
5-dollar notes	

- (b) What is the total amount of money in Meilin's piggy bank?

Ans: \$ _____

- 33 Some shoppers in a supermarket were asked to sample four different brands of chocolates A, B, C and D and select their favourite brand of chocolate. The results are shown in the bar graph below.

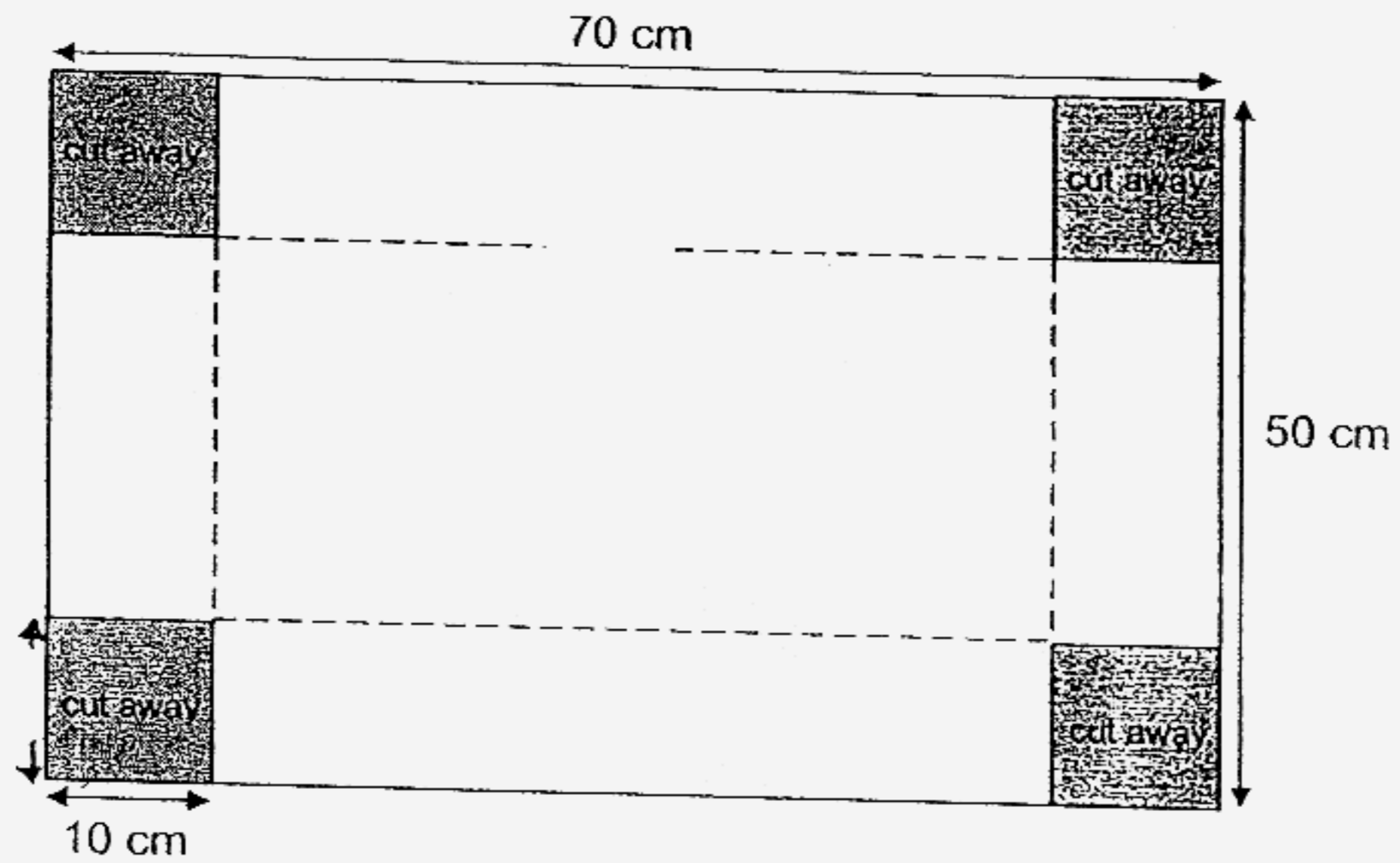


- (a) What was the total number of shoppers who sampled the different brands of chocolate?
- (b) What fraction of the male shoppers selected Brand C as their favourite brand of chocolate?

Ans: (a) _____

(b) _____

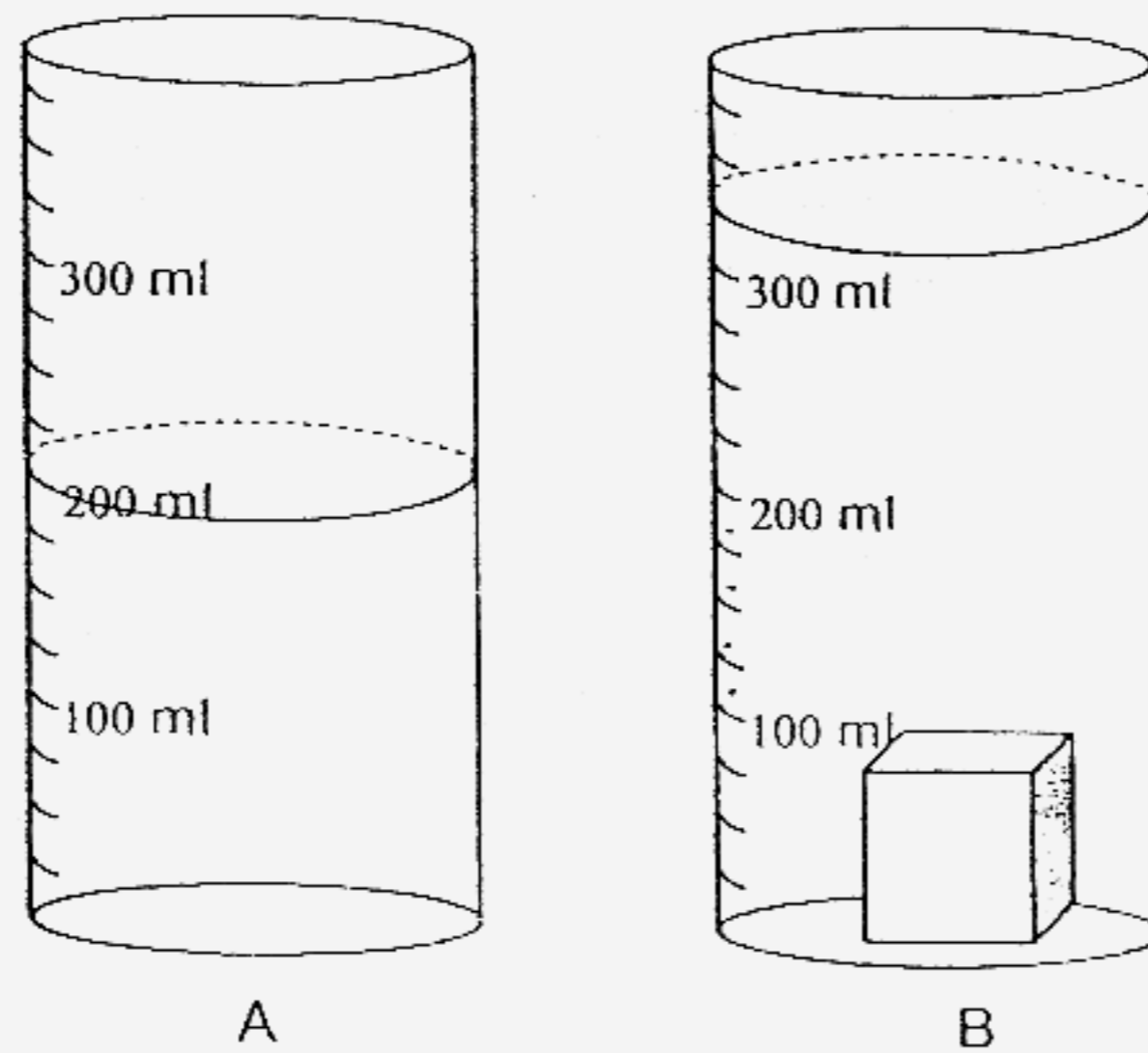
- 34 A rectangular piece of cardboard measures 70 cm by 50 cm. Four squares of side 10 cm are cut out from the corners as shown and the cardboard is then folded to make an open box.



Find the capacity of the open box.

Ans: _____ cm^3

- 35 Ahmad poured some water into a beaker as shown in Figure A. He placed a cube into the same beaker as shown in Figure B. What was the length of one edge of the cube?



Ans: _____ cm

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For questions 36 to 48, show your working 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)

-
- 36 Amanda was m years old 4 years ago. She is 2 years older than her sister, Grace. Find their total age in 2 years' time.

Ans: _____ [3]

-
- 37 Xiao Ting bought a total of 30 kiwis and mangoes. After eating 0.5 of the total number of kiwis and 0.2 of the total number of mangoes, she had 21 fruit left. How many kiwis were eaten?

Ans: _____ [3]

- 38 The product of a 2-digit number and a 1-digit number is a 3-digit number. Using only the digits 6, 8 and 9, identify the numbers represented by A, B and C.

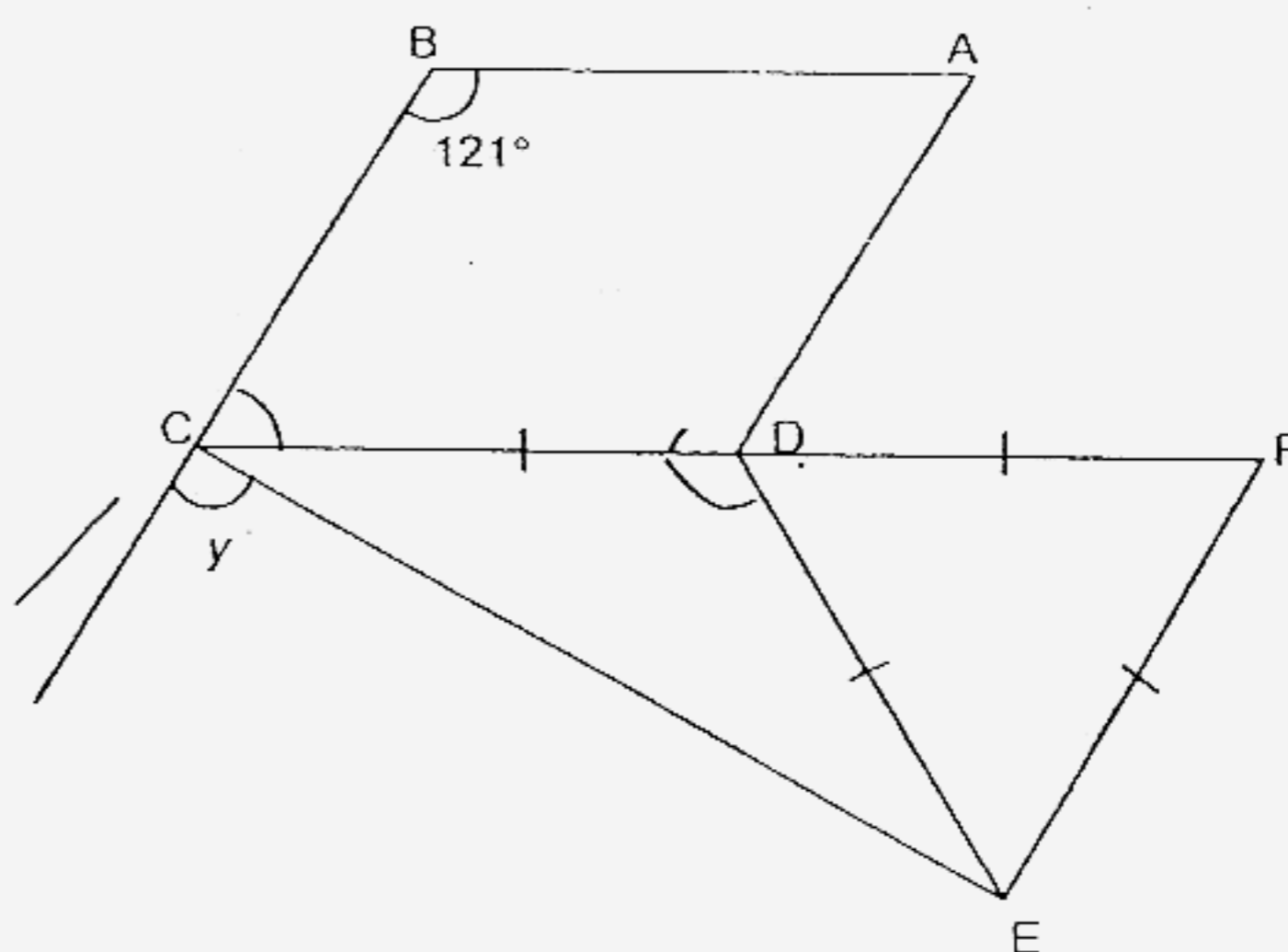
$$\begin{array}{r}
 \begin{array}{|c|} \hline A \\ \hline \end{array} \begin{array}{|c|} \hline B \\ \hline \end{array} \\
 \times \qquad \qquad \begin{array}{|c|} \hline 7 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|} \hline C \\ \hline \end{array} \begin{array}{|c|} \hline B \\ \hline \end{array} \begin{array}{|c|} \hline C \\ \hline \end{array} \\
 \hline
 \end{array}$$

Ans: A: _____ [1]

B: _____ [1]

C: _____ [1]

- 39 In the figure below, ABCD is a parallelogram, CDE is an isosceles triangle and DEF is an equilateral triangle. Find $\angle y$.



Ans: _____ [3]

- 40 On the way home, Muthu had to pick up his wife from a shopping centre. At 5.30 p.m., he passed by a road sign which indicated that he was 50 km away from his home and 40 km away from the shopping centre. He called his wife at 6.00 p.m. to get ready when he passed by a park. The shopping centre was midway between the park and his home. find the average speed Muthu was driving before reaching the park.

Ans: _____ [3]

- 41 The ratio of the price of a television set to the price of a VCD player was 8 : 5. When there was a decrease of \$225 in the price of each of the item, the ratio of their prices became 17 : 5. What was the percentage decrease in the price of the VCD player?

_____ [3]

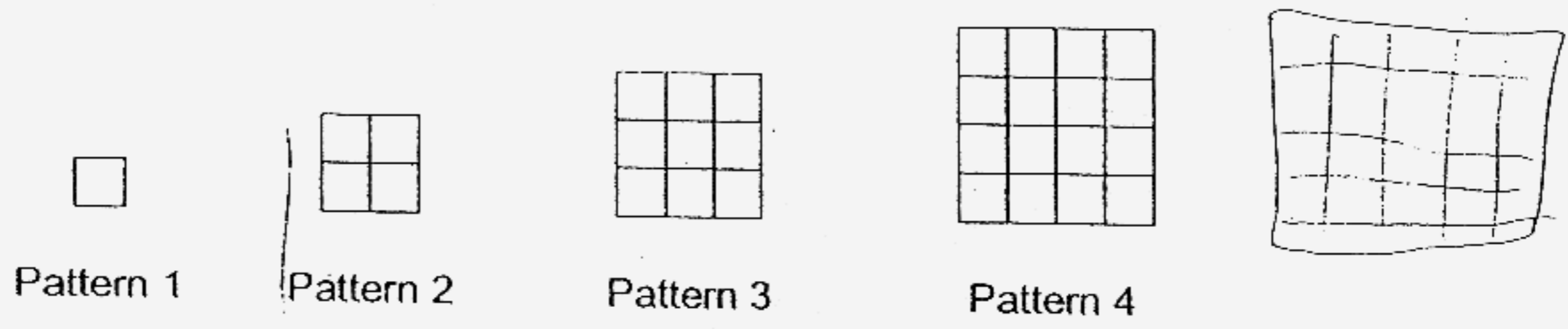
- 42 $\frac{1}{6}$ of the people in a cinema were boys. There were 20 more girls than boys in the cinema. The rest of the people were adults. If there were 65 more adults than girls, what was the ratio of the number of girls to the number of adults in the cinema? Give your answer in its simplest form.

Ans: _____ [4]

- 43 Jiahong and Lucy each saved a fixed amount of money every day. Lucy, who started saving earlier, saved \$5 each day. When Lucy had saved for 6 days, Jiahong had saved \$9. When Lucy had saved for 11 days, Jiahong had saved \$24. How many days had Lucy saved when their total savings was \$119?

Ans: _____ [4]

44 The figures below are made up of squares of side 1 cm.



(a) Complete the table below.

Pattern	Total number of squares
1	1
2	5
3	
4	

[2]

(b) How many 3-cm by 3-cm squares (as shown in Pattern 3) are there in a 4-cm by 4-cm square (as shown in Pattern 4)?

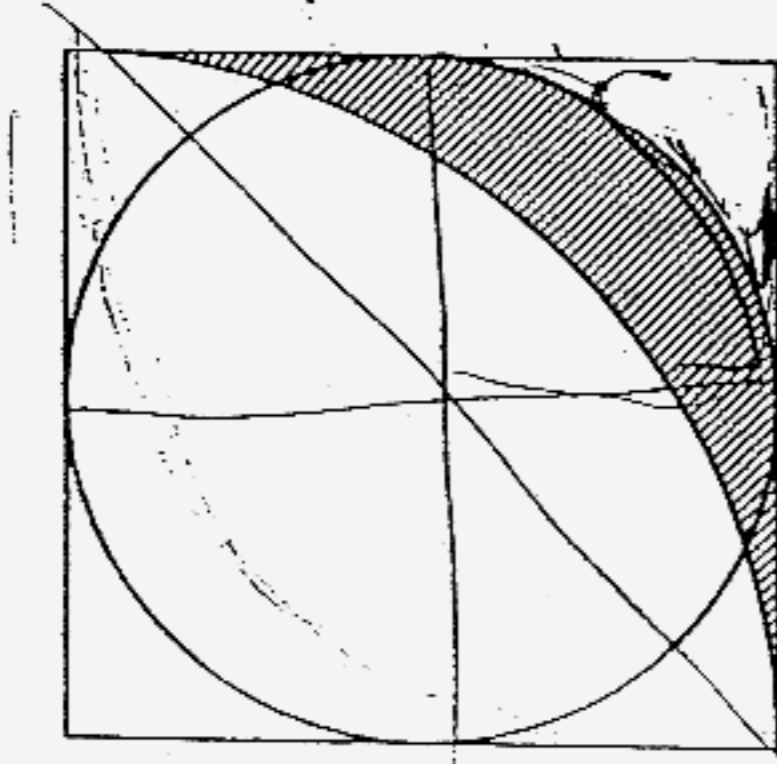
(c) How many 3-cm by 3-cm squares are there in a 5-cm by 5-cm square?

Ans: (b) _____ [1]

(c) _____ [1]

- 45 The figure below is made up of a square, a quadrant and a circle. The length of the square is 14 cm. Find the area of the shaded portion of the figure.

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



Ans: _____ [5]

- 46 The table shows the pricing of 3 types of tickets.

Price of each ticket		
Coach	Train	Bus
\$30	\$15	\$10

The ratio of the number of coach tickets sold to the number of train tickets sold was 5 : 6. The ratio of the number of train tickets sold to the number of bus tickets sold was 4 : 11. The amount of money collected from the sale of the bus tickets was \$270 more than the amount of money collected from the sale of the coach tickets. How much more money was collected from the sale of the coach tickets than the train tickets?

Ans: _____ [5]

- 47 Zara had 24 more skirts than blouses. She sold $\frac{1}{4}$ of the skirts and $\frac{1}{5}$ of the blouses. Among the clothes that were sold, there were 8 more skirts than blouses. What percentage of the remaining clothes that Zara had were blouses?

Ans: _____ [5]

- 48 Andrea has \$200 more than Bala. Andrea gives 60% of his money to Bala. Bala then gives 25% of his money to Andrea. In the end, Bala has \$200 more than Andrea. How much did Andrea have at first?

Ans: _____ [5]

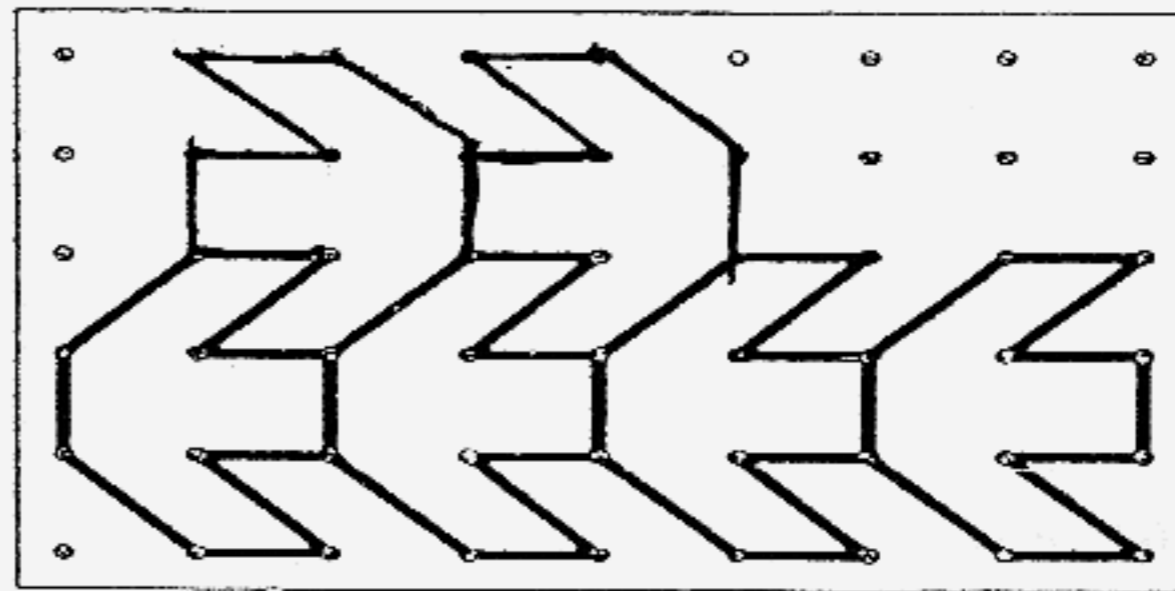
END OF PAPER

Setters: Mrs Goh Oon Tong
Ms Mok Pei Terk
Ms Serene Yeo

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

16. 72384.19

21.

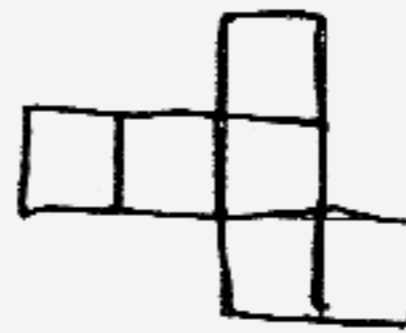


17. $\frac{11}{12}$

22. \$9.00

18. 80km/hr

23.

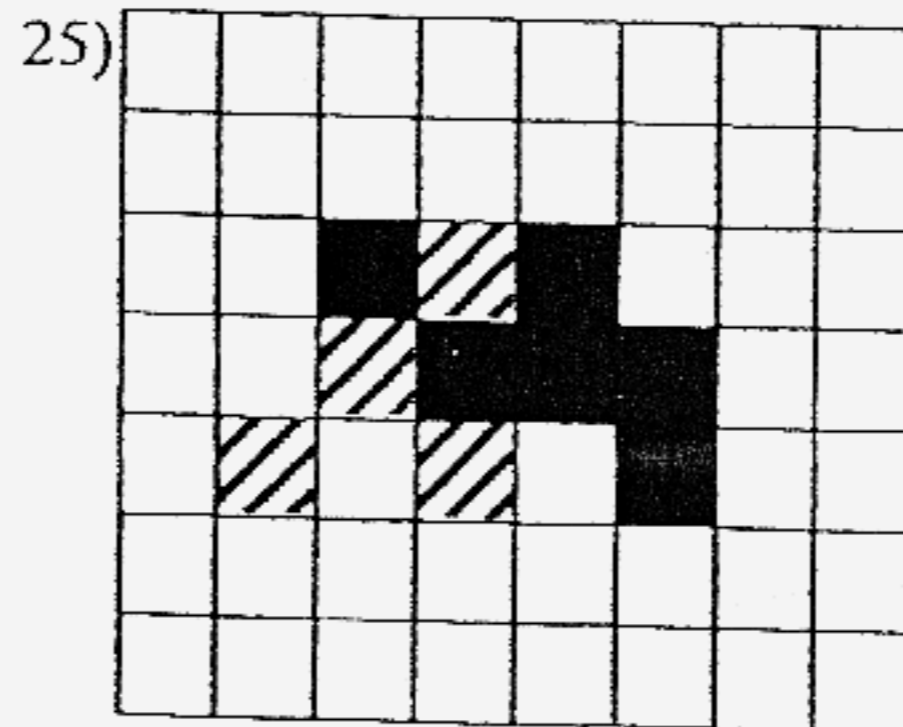


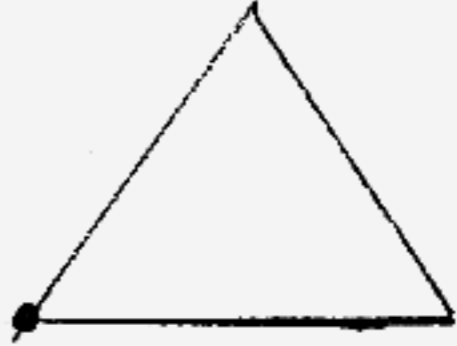
19. 6000 words

24. B

20. 3.15am

25.



26.	$(4 \times 4 + 4) \div 4 - 4 = 1$	27.	136cm^2
28.	0.50kg	29.	
30.	52°	31.	42marks
32.	\$87.10	33	160 shoppers
		a.	
		33	$\frac{5}{14}$
		b.	
34.	15000cm^3	35.	5cm
36.	$m + 4 + 2 + (m + 4 - 2 + 2)$ $m + 6 + m + 4$ <u>$2m + 10$</u> years (Ans) The total age is <u>$(2m+10)$</u> years (Ans)	37.	$30 - 21 = 9$ (Total fruit) K M $\frac{1}{2}$ $\frac{1}{5}$ $10 \div 2$ $20 \div 5$ $= 5$ $= 4$ <u>5 Kiwis</u> (Ans)
38.	$98 \times 7 = 686$ $89 \times 7 = 623$ A : 9 B : 6 C : 8 (Ans)	39.	$\angle BCD = 180^\circ - 121^\circ = 59^\circ$ $\angle FDE = 180^\circ \div 3 = 60^\circ$ (equilateral Δ) $\angle EDC = 180^\circ - 60^\circ = 120^\circ$ $\angle DCE = (180^\circ - 120^\circ) \div 2 = 30^\circ$ $\angle y = 180^\circ - 30^\circ - 59^\circ = \underline{91^\circ}$ (Ans)
40.	$\frac{1}{2}\text{hr} = 30\text{km}$ $1\text{hr} = 30 \times 2$ $= \underline{60\text{km/hr}}$ (Ans)	41.	$32 - 17 = 15$ $5u = \$225.00$ $20u = \$300.00$ $\$300.00 = 100\%$ $\$225.00 = \underline{75\%}$ (Ans)

<p>42. $\frac{1}{6} = \frac{7}{42}$ $42 - 7 = 35$ $35 - 7 - 7 = 21$ $21u = 65 + 20 + 20$ $= 105$ $7u = 35$ $= 35 + 20$ $= 55$ $= 55 + 85$ $= 120$ $55 : 120$ <u>11 : 24</u> (Ans)</p>	<p>43. On 6 days of Lucy saved, Jiahong save \$9 On 11 days of Lucy saved Jaihong save \$24</p> <p>(11 - 6) days = \$(24 - 9) 5 days = \$15.00 1 day = \$3.00 (Jiahong) Lucy + Jiahong = \$5.00 + \$3.00 = \$8.00</p> <p>11 days = \$24.00 (Jiahong saved) 11 days = \$5 x 11 (Lucy saved) = \$55 = \$(55.00 + 24) = \$79.00 = \$(119 - 79) = \$40.00 = \$(40.00 ÷ \$8) = 5 days.</p> <p>11 days + 5 days = \$(79 + 24) 16 days = \$119.00</p> <p>It takes them <u>16 days</u> to save \$119.00 (Ans)</p>
<p>44a. $3 \times 3 = 9$ $9 + 5 = \underline{14}$ (Pattern 3)</p> <p>$4 \times 4 = 16 + 14 = \underline{30}$ (Pattern 4)</p> <p>44b. Pattern 4 = $4 \times 4 = 16$ squares $= \sqrt{16}$ $= \underline{4}$ (Ans)</p> <p>44c. $3 \times 3 = 9\text{cm}$ $= \underline{9\text{cm}}$ (Ans)</p>	<p>45. $14 \times 14 = 196\text{cm}^2$ $= \frac{22}{7} \times 7 \times 7 = 154\text{cm}^2$ $= \frac{22}{7} \times 14 \times 14$ $= 616 \div 4$ $= 154\text{cm}^2$ $= 196 - 154$ $= 42\text{cm}^2$ $= (42 \times 3) \div 4$ $= 31\frac{1}{2}\text{cm}^2$ (Ans)</p> <p>46. 80 marbles</p> <p>47. a) 300 km b) 500 km</p> <p>48) 270 Watches and Clocks</p>