Index No. | | | | | | - | |

NAN HUA PRIMARY SCHOOL

PRELIMINARY EXAMINATION 2007

PRIMARY 6

MATHEMATICS

(BOOKLET A)

Booklet A	/ 20
Booklet B	/ 80
TOTAL	/ 100

Parent's Signature & Date

Name: _____ ( )

Class: Pr. 6 _____

Date: 21 August 2007

Total Time for booklets A and B: 2 hour 15 minutes

INSTRUCTION TO CANDIDATES

1. Write your Index Number in the boxes at the top right-hand corner.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Section A (20 marks)

Questions 1 to 10 carry 1 mark each. Questions 11 to 15 carry 2 marks each. For each question, 4 options are given. Only one of them is correct. Make your choice (1, 2, 3 or 4). Shade the correct oval in the optical answer sheet.

1. 4 hundreds, 3 tenths and 5 thousandths is _____

(1) 400.305
(2) 400.350
(3) 430.005
(4) 430.500

( )

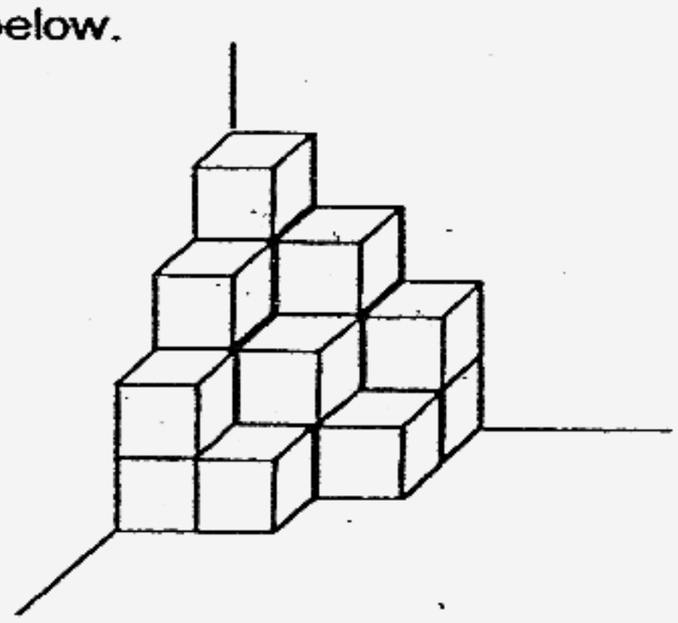
2. What is the missing number in the box?

$$18 \times \frac{2}{3} = 10 \times \frac{2}{3} + \frac{2}{3} + \frac{2}{3} + \frac{2}{3} \times \square$$

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

( )

3. Sally stacked some identical cubes in a corner of the room as shown in the diagram below.



How many cubes did Sally use?

(1) 10
(2) 11
(3) 17
(4) 18

( )

4. Adrian has $\$q$. Ben has thrice as much as Adrian. John has \$4. How much do the three boys have altogether?

(1) $\$q + 7$
(2) $\$q + 12$
(3) $\$3q + 4$
(4) $\$4q + 4$

( )

5. Find the value of $6 + 12 \div 3 \times 2$

(1) 3
(2) 12
(3) 14
(4) 20

( )

6. A fruit seller sells apples at 4 for \$1.50. How much do I have to pay for 48 apples?

(1) \$16.50
(2) \$18.00
(3) \$19.50
(4) \$21.00

( )

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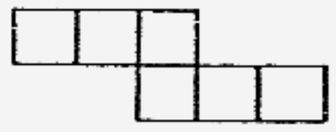
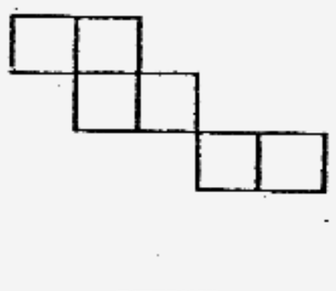
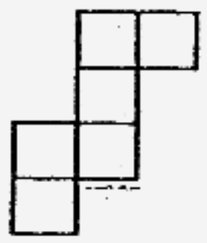
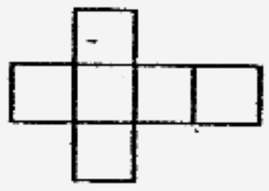
7. Which of the following is **not** the NET of a cube?

(1) 

(2) 

(3) 

(4) 

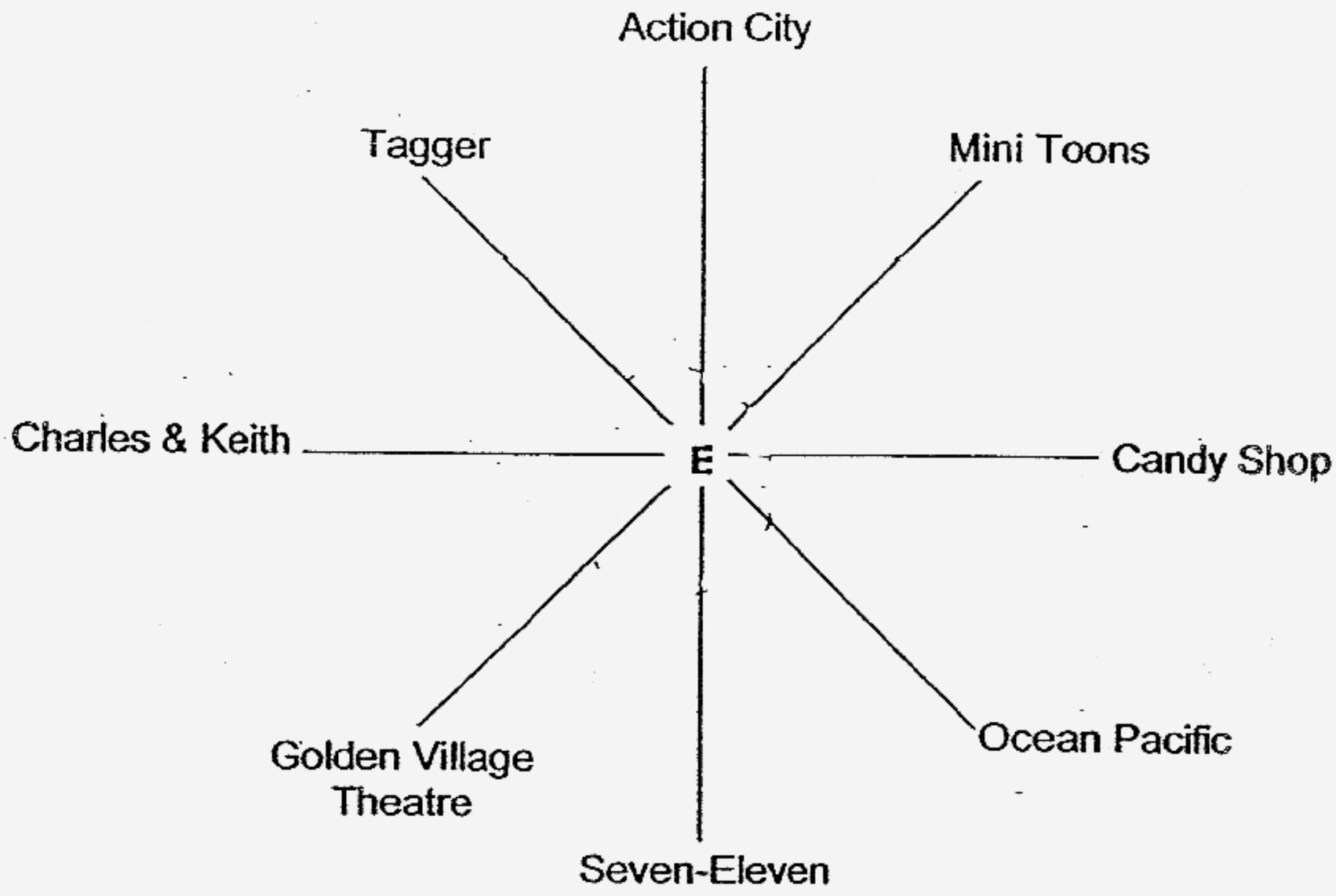
( )

8. Town A and Town B were 300 km apart. A car travelled from Town A to Town B at 65 km/h. A truck travelled from Town B to Town A at 55 km/h. They started at the same time. How long will it take them to meet?

(1) 2 h
(2) 2 h 15 min
(3) 2 h 30 min
(4) 2 h 45 min

( )

9. Siewlian is standing at a point marked 'E' in the figure below. She is facing Golden Village theatre. Which place will she face when she turns 270° anti-clockwise?



(1) Tagger
(2) Candy Shop
(3) Ocean Pacific
(4) Charles & Keith

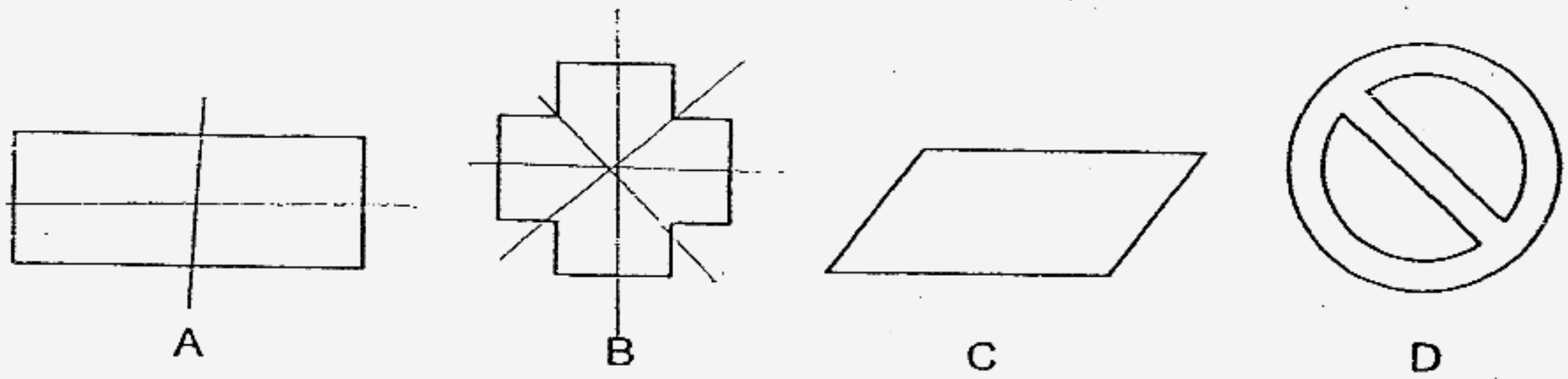
( )

10. $\frac{1}{5}$ of Robert's money is $\frac{3}{4}$ of Peter's money.
Find the ratio of Peter's money to the total sum of money.

(1) 1 : 9
(2) 4 : 15
(3) 4 : 19
(4) 15 : 9

( )

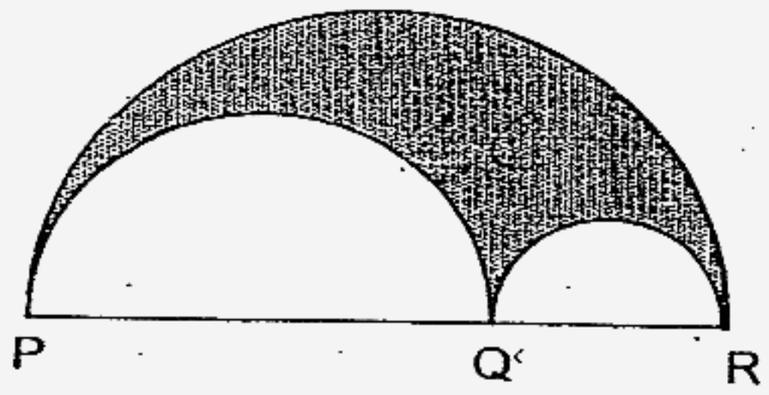
11. Which figure(s) below has exactly 4 lines of symmetry?



(1) B only
(2) B and C only
(3) A and D only
(4) A, C and D only

( )

12. The figure is made up of 3 different semi-circles. The ratio of PQ : QR is 2 : 1. Given that the length of PQ is 42 cm, find the perimeter of the shaded region.
[Take $\pi = \frac{22}{7}$]



(1) 132 cm
(2) 174 cm
(3) 198 cm
(4) 306 cm

( )

13. After giving Tom $15 and spending another $10, Jack had as much money as Tom. How much more money than Tom did Jack have at first?

(1) $5
(2) $25
(3) $30
(4) $40

( )

14. Jane had 50 more Singapore stamps than Malaysian stamps.
After giving away 30 stamps of each type, his collection of Malaysian stamps becomes 50% of his collection of Singapore stamps.
Find the total number of stamps he has left.

(1) 110
(2) 150
(3) 160
(4) 170

( )

15. A lorry left Town X for Town Y at 12 p.m., travelling at an average speed of 50 km/h. At 3 p.m., a car also left Town X for Town Y. If the car took 2 hours to catch up with the lorry, find the average speed of the car.

(1) 75 km/h
(2) 115 km/h
(3) 125 km/h
(4) 150 km/h

( )

NAN HUA PRIMARY SCHOOL

PRIMARY SIX PRELIMINARY EXAMINATION 2007

MATHEMATICS

BOOKLET B

Marks: / 80

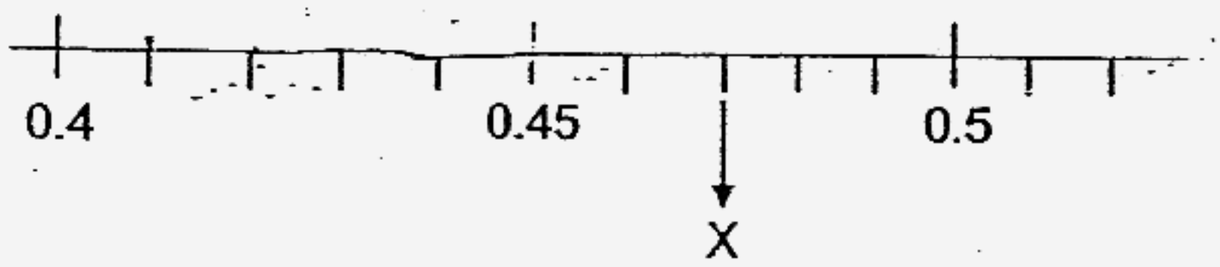
Name : _____ ( )

Class : P 6 ____

SECTION 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 value of the point marked 'X'?
(Give your answer as a decimal)

Answer : _____

17. ❖ + ♣ = 28

❖ + ♥ = 29

♣ + [♣] = 24

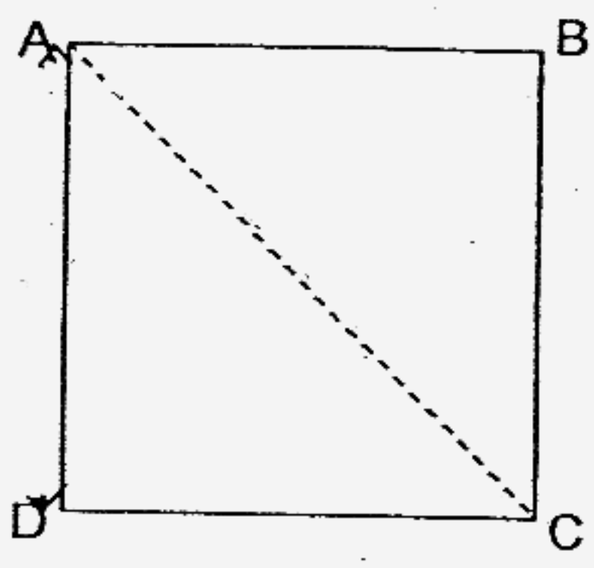
What is the value of ♥?

Answer : _____

18. Simplify $4a - 5 + a + 9$

Answer : _____

19. ABCD is a square. The length of AC is 14 cm. What is the area of the square?



Answer : _____ cm^2

20. The average of 7 consecutive numbers is 84. Write down the smallest and the biggest numbers.

Answer : Smallest _____

Biggest _____

21. Sue had $15 and she wanted to buy a few mugs.
If each mug costs $1.20, what was the **maximum** number of mugs she could buy?

Answer : _____ mugs

22. A wooden block is 81 cm long, 50 cm wide and 30 cm tall. ~~How many~~ 3-cm wooden cubes can be cut from the wooden block?

What is the maximum number that

Answer : _____ ~~3-cm cubes~~

23. A movie started at 11.37 p.m. and lasted for 170 minutes. What time will the movie end? Give your answer in 24-hour clock.

Answer: _____

24. Sammy cycled for $1\frac{1}{2}$ hour at 20 km/h and then ran for 30 minutes at 9 km/h. Find his average speed for the whole journey.

Answer : _____ km

25. Alice and Benny cycled away from each other at 20 km/h and 18 km/h respectively. How far apart would they be after 20 minutes?

Answer: _____ km

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)

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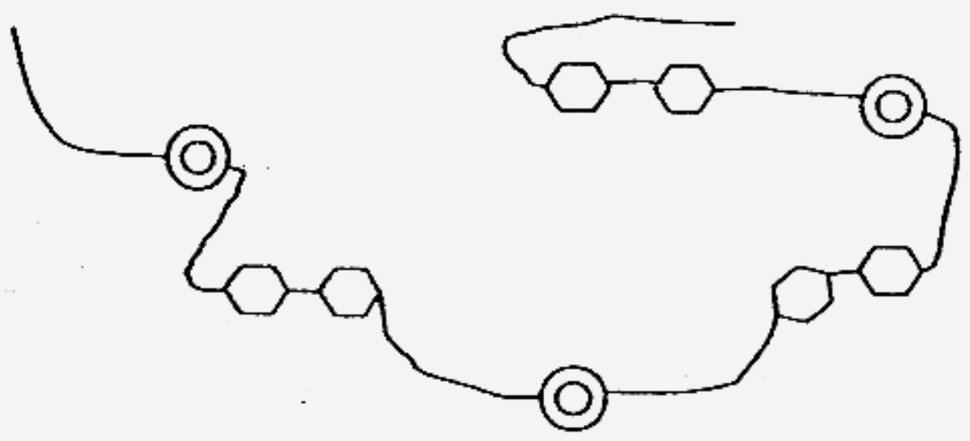
26. Theresa made a necklace of 54 beads. The beads are of two different shapes and form a repeated pattern. The picture below shows part of her necklace.
How many ⬡ beads does she need?

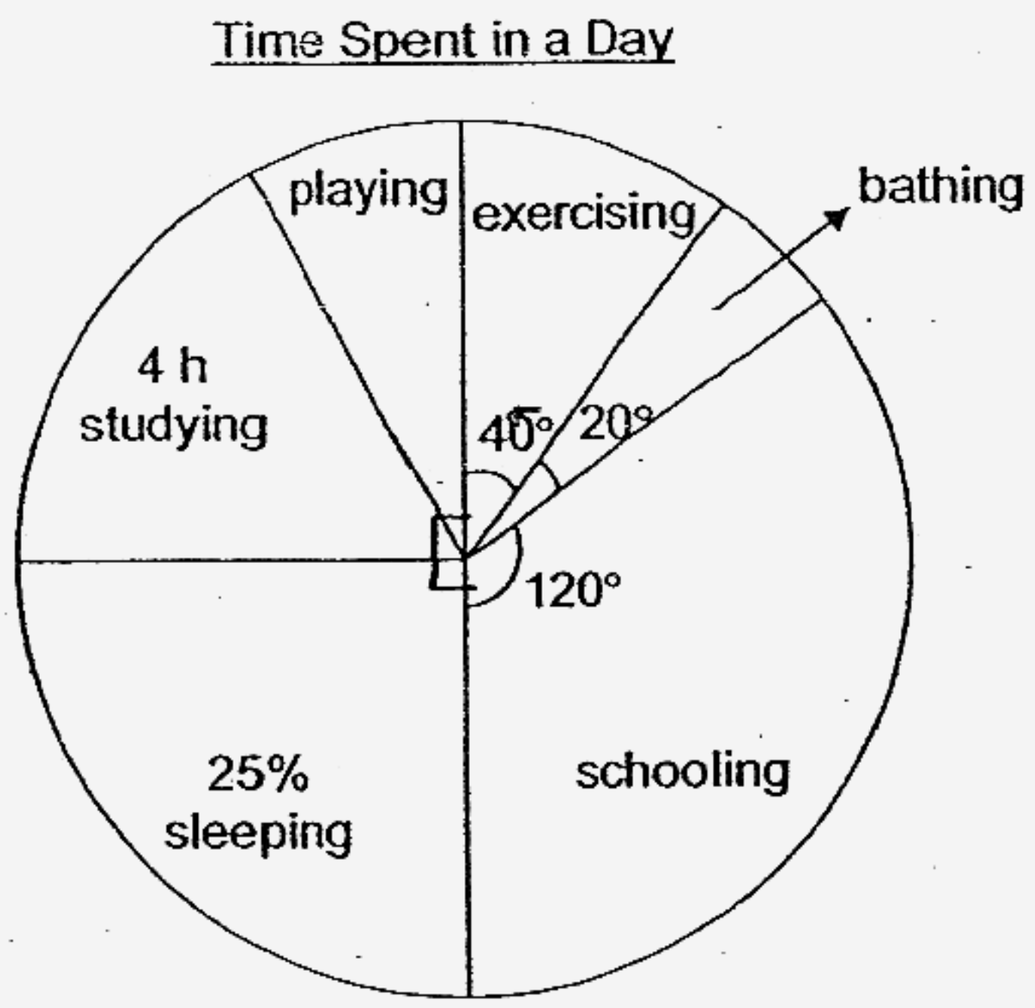


Answer : _____ ⬡ beads [2]

27. Tap A can fill a tank in 4 minutes. Tap B can fill the same tank in 6 minutes. If both taps are turned on at the same time, how long will it take to fill the tank?

Answer : _____ minutes [2]

28. The pie chart below shows how Jonathan spent his time on a particular day.



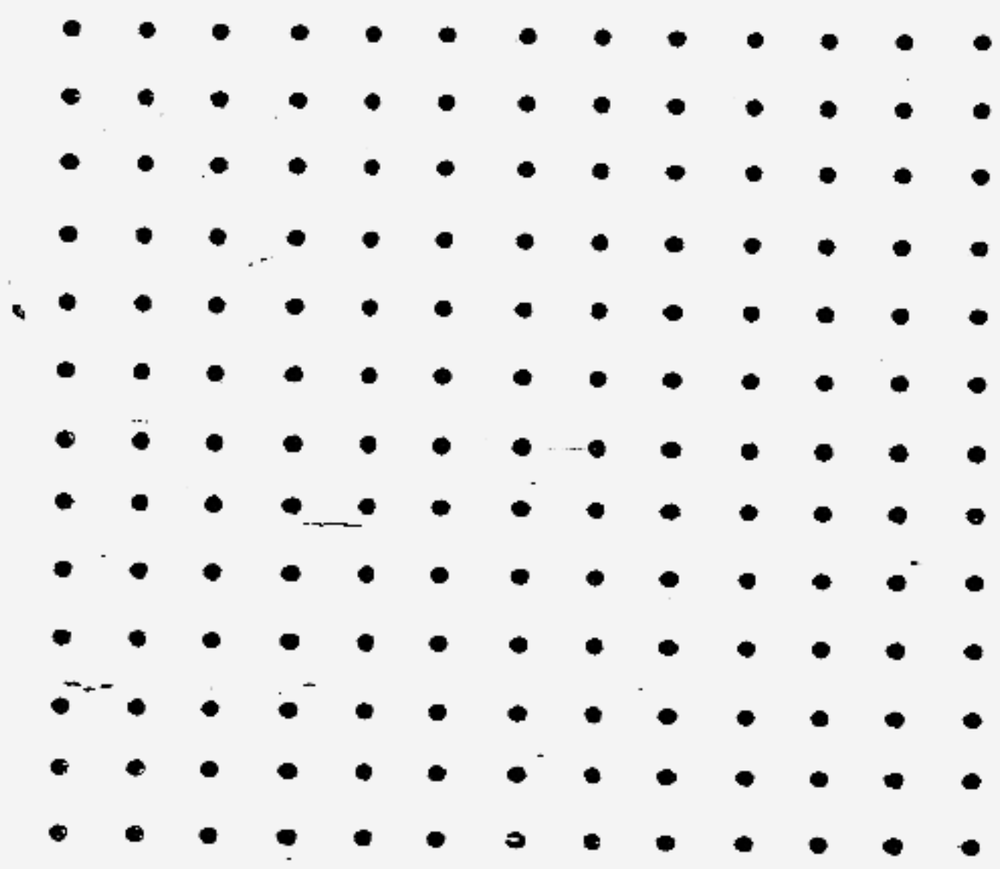
How many hours did he spend playing?

Answer :- _____ h [2]

29. Joyce, who worked as a salesgirl, was paid $\$p$ an hour on weekdays and Saturday, and $12 an hour on Sunday.
How much was she paid for working 6 hours a day for a week? (including Sunday)

Answer : $ _____ [2]

30. Martin arranges some coins to form a square with 13 rows and 13 columns. He then rearranges the coins to form two squares of different sizes. Given that each row of the bigger square has 7 more coins than the smaller square, find the number of coins in each row of each new square formed.

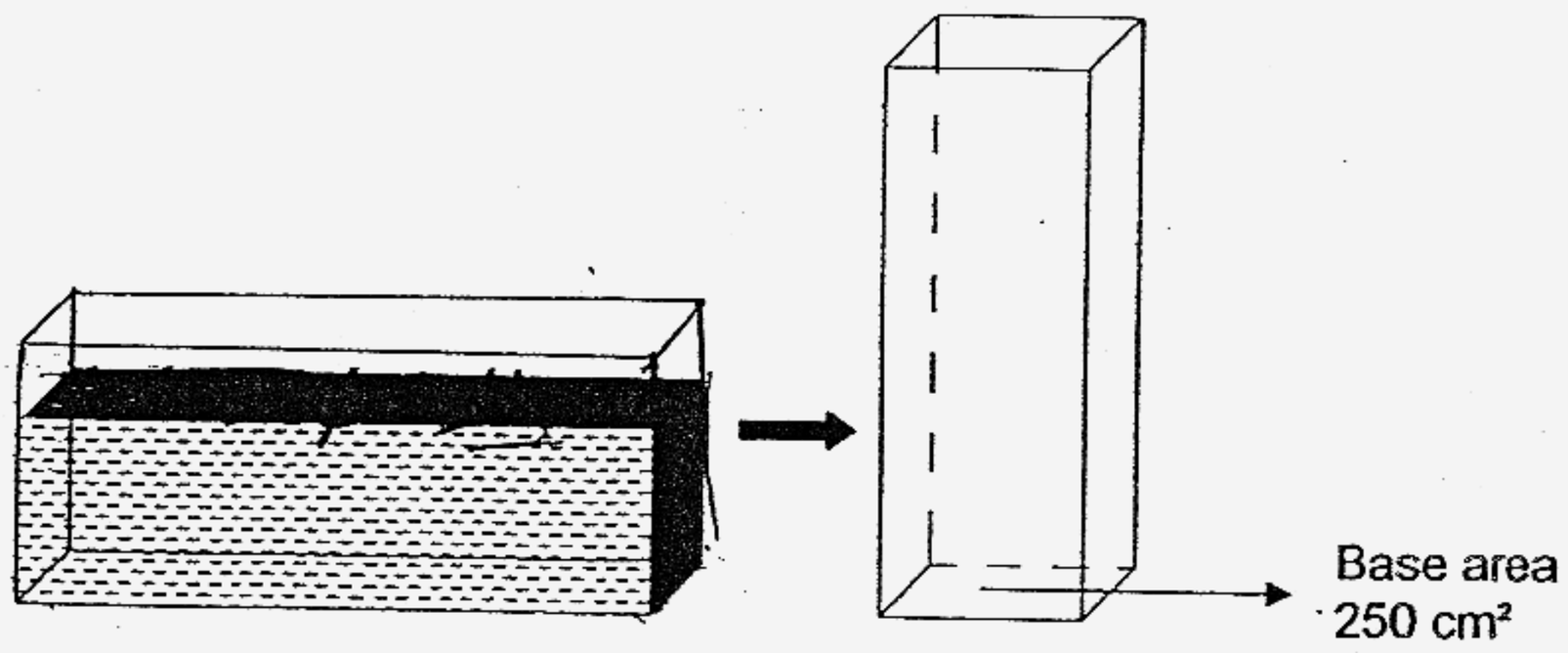


Answer : New square 1 _____[1]

New square 2 _____[1]

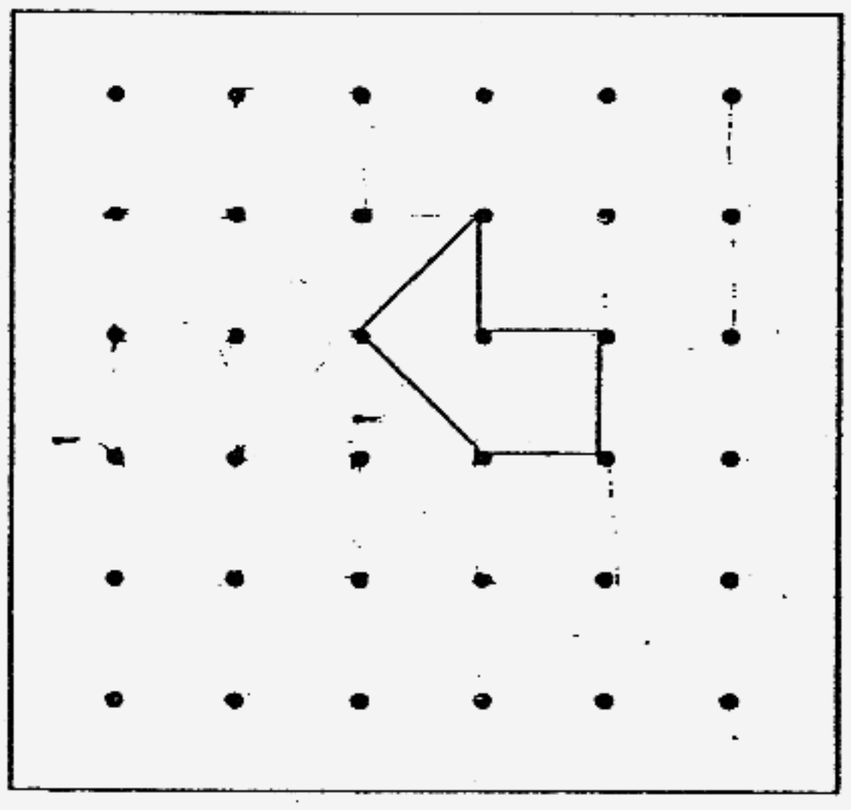
31. A rectangular tank, 20 cm long, 25 cm wide and 10 cm tall, is $\frac{3}{4}$ filled with water.

When 4 litres of water was poured into the tank, some water overflowed and was collected in an empty rectangular container. Find the height of the water level in the container.

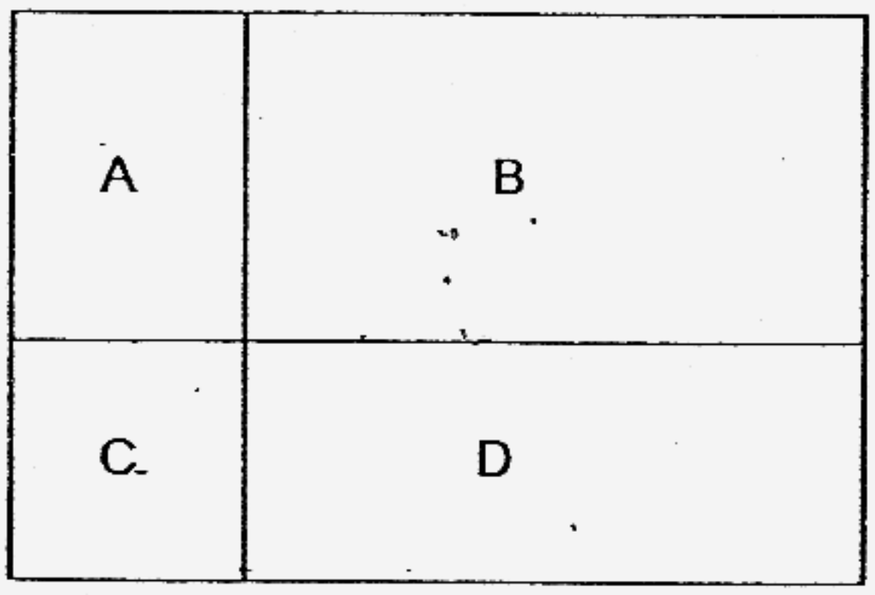


Answer : _____ cm [2]

32. Draw 5 more unit shapes on the grid provided to show tessellation. [2]



33. The figure below shows a rectangle divided into 4 parts A, B, C and D. The areas of A, B and C are in the ratio 8 : 21 : 4 respectively. C is a square with an area of 16 cm². Find the area of rectangle D.



Answer : _____ cm² [2]

34. The table shows the number of books borrowed by pupils in a certain week from the schcol library.

Number of books	0	1	2	3	4	5
Number of children	12	6	5	3	4	6

What was the total number of books borrowed by the pupils?

Answer : _____ books [2]

35. At a fruit stall, the ratio of the number of apples to the number of pears is 5 : 8. If 60% of the pears are sold, what percentage of the apples must be sold so that there will be an equal number of apples and pears left?

Answer : _____ % [2]

Section C

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 show in brackets [ ] at the end of each question or part-question.
(50 marks)

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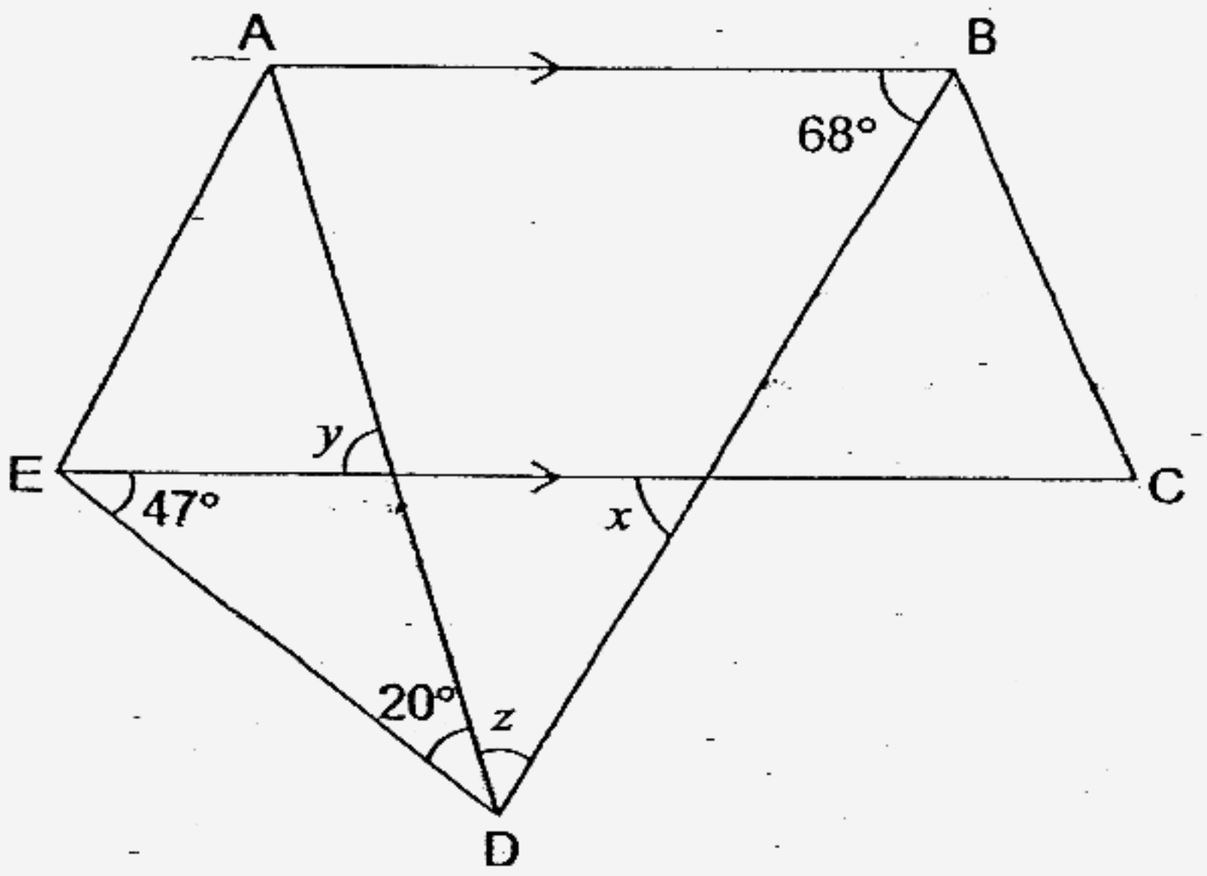
36. In the figure, not drawn to scale, find
    (a) $\angle x$
    (b) $\angle y$
    (c) $\angle z$

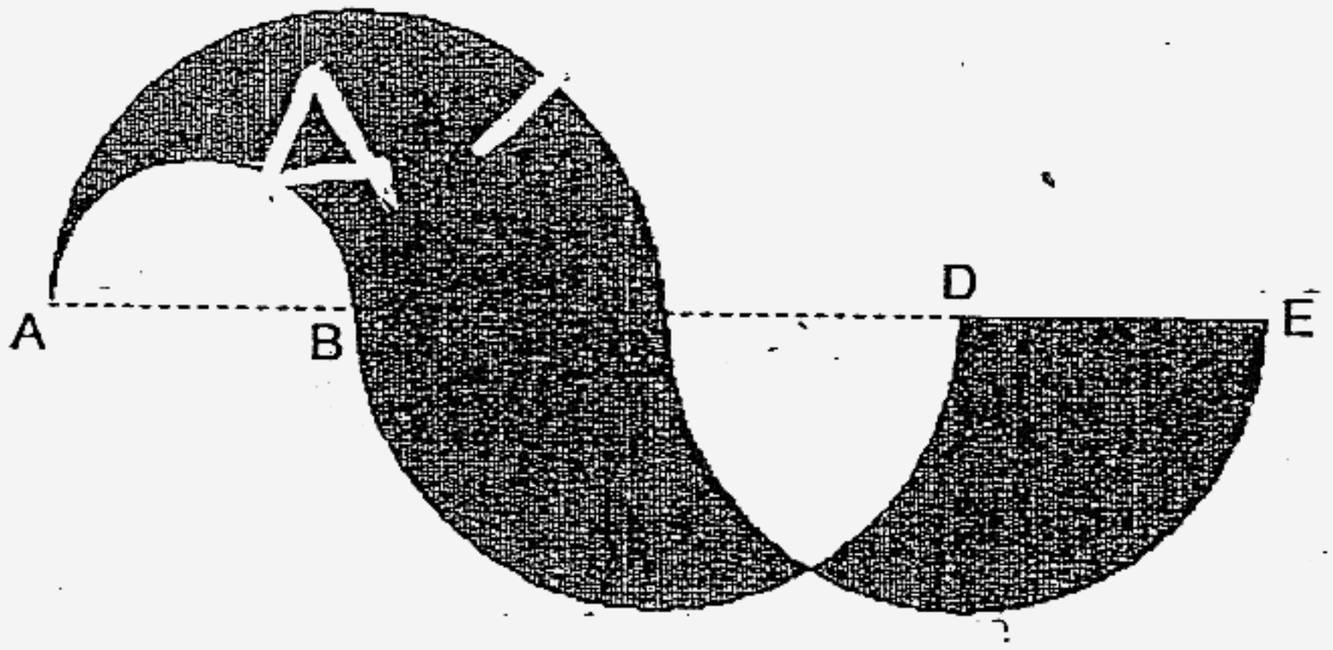


Answer : (a) $\angle x =$ _____ [1]

(b) $\angle y =$ _____ [1]

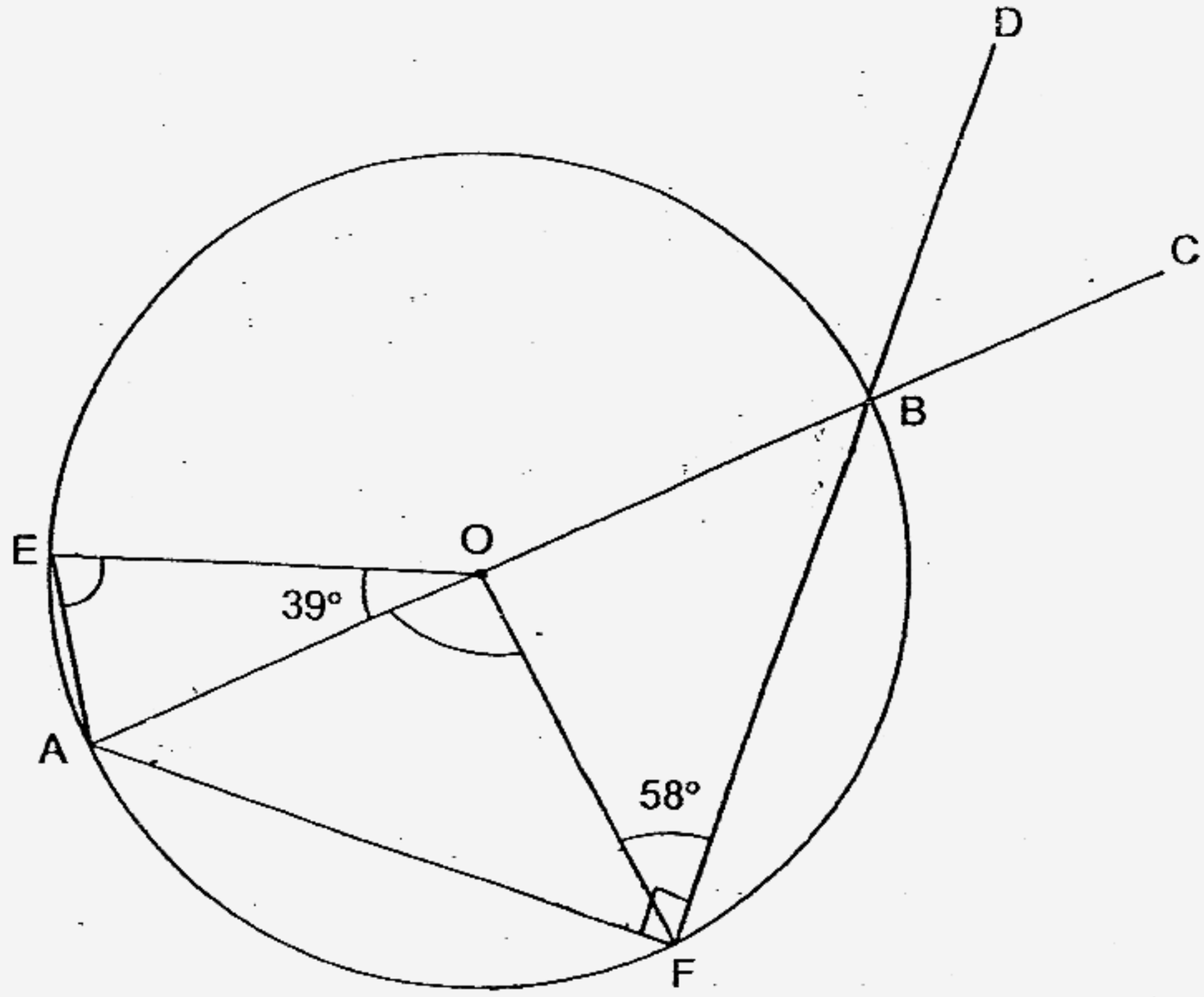
(c) $\angle z =$ _____ [1]

37. In the figure below, AE is a straight line of 8 cm. B is the mid-point of AC, C is the mid-point of AE, and D is the mid-point of CE. Find the perimeter of the shaded figure.
[Take $\pi = 3.14$]



Answer : _____ [3]

38. In the figure, not drawn to scale, ABC and DBF are straight lines. Point O is the centre of the circle.
Find
(a) ∠AEO
(b) ∠AOF



Answer : (a) _____[1]

(b) _____[2]

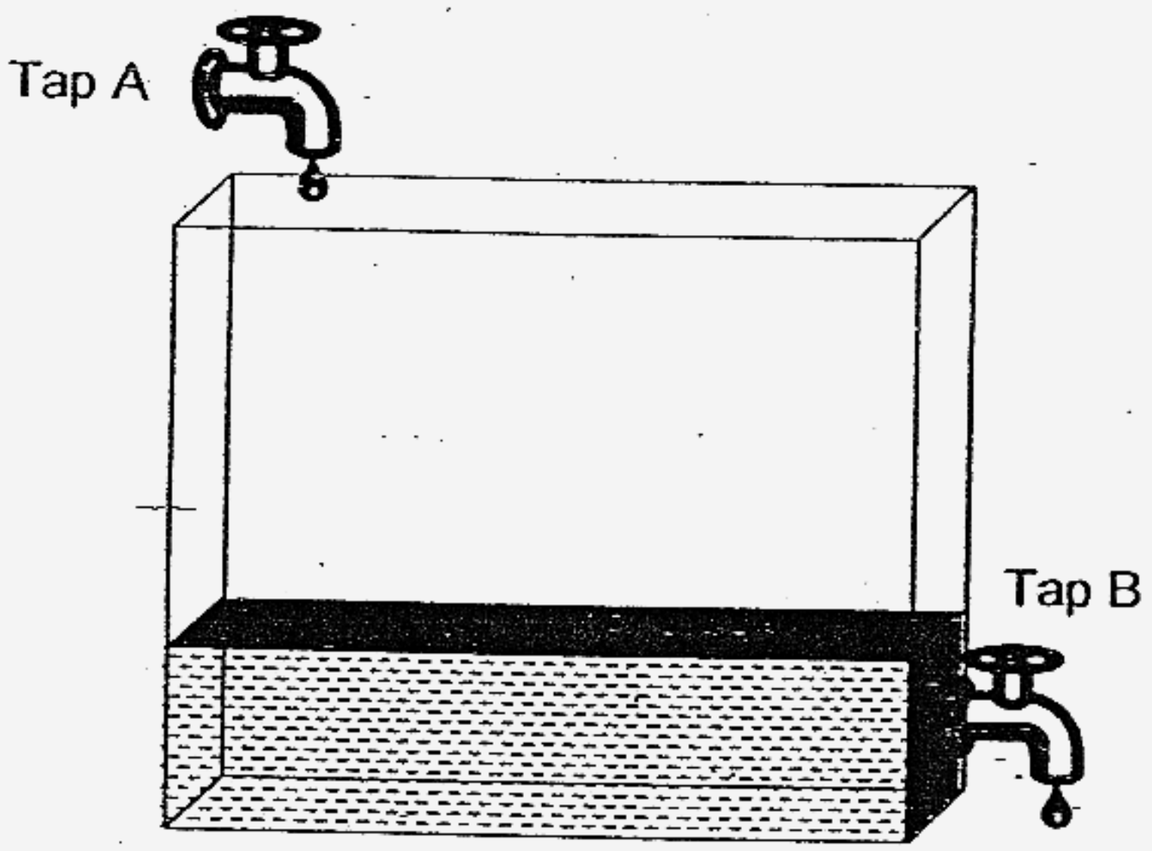
39. There were 10 word problems in a Mathematics Competition.
5 points were awarded for each correct answer and 3 points were deducted for each incorrect answer.
If Amy answered all 10 word problems and scored 26 points, how many word problems did she answer correctly?

Answer : _____ – [3]

40. Mr. Lee worked out a saving plan for Janet.
For every $4 Janet saved, he would top up $2 into her bank account.
After some time, the amount saved in Janet's account was $252.
How much of this amount was contributed by Mr. Lee?

Answer : _____ [3]

41. Tap A would fill the tank with water at the rate of 20 ℓ / min. Tap B would drain the water from the tank at 15 ℓ / min.
At first, tap A was turned on for 6 minutes. Then tap B was turned on.
Another ten minutes later, how much water was there in the tank?
(give your answer in litres)



Answer : _____ [3]

42. Benjamin spent $\frac{3}{7}$ of his money on 6 toys and 6 erasers, and $\frac{1}{4}$ of the remainder on 10 cards. Each eraser cost $\frac{1}{7}$ as much as a toy. Each card cost $0.30 more than an eraser.
How much money did Benjamin spend on each toy?

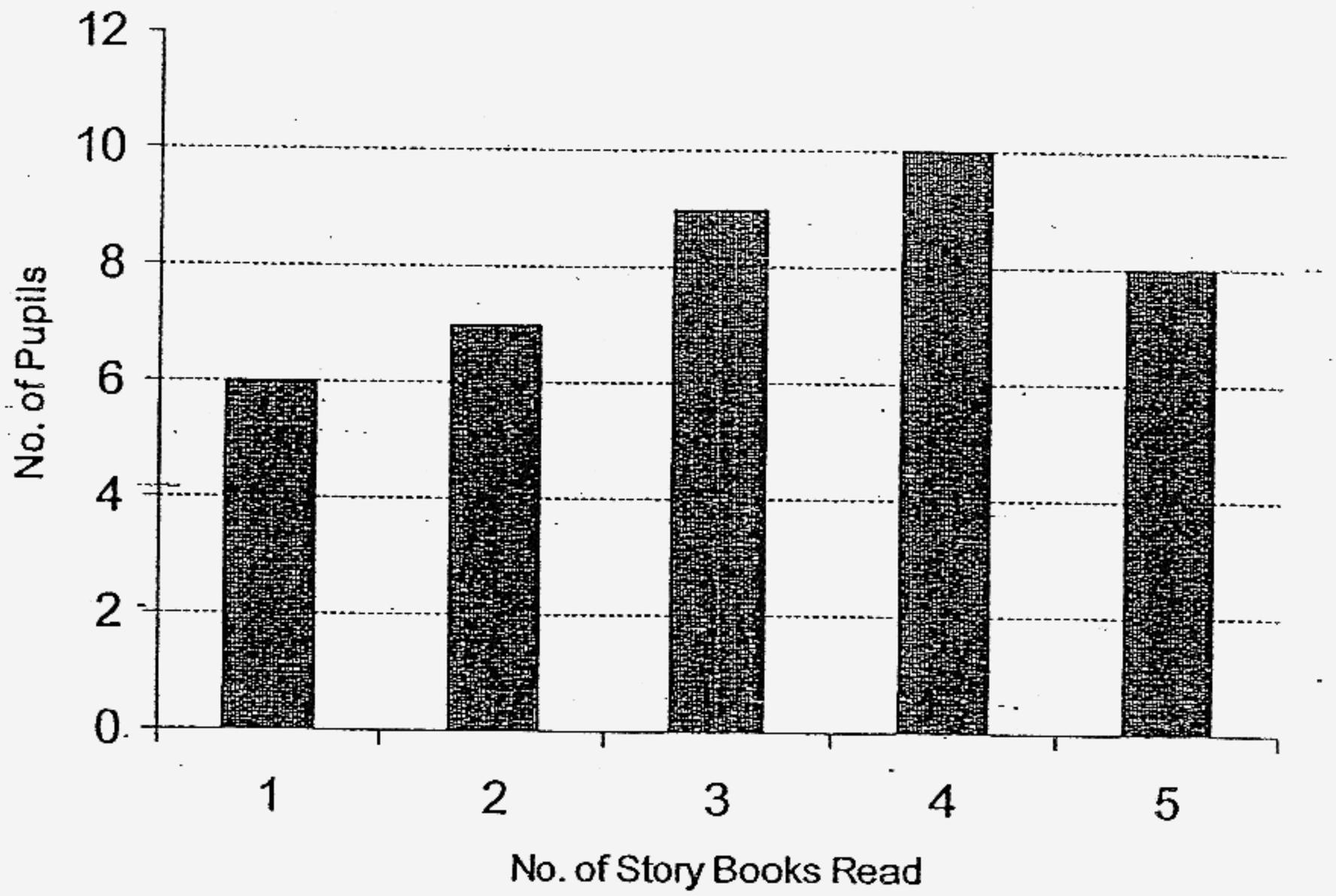
Answer : _____ [4]

43. Town E and Town F were 240 km apart. Jason left Town E at 9.00 a.m. traveling at an average speed of 60 km/h. Karen left Town E some time later than Jason and overtook him at 11 a.m. Karen's traveling speed was 90 km/h.
(a) At what time did Karen leave Town E?
(b) How long had Karen rested when Jason finally reached Town F?

Answer : (a) _____ [2]

(b) _____ [2]

44. The graph below shows the number of story books read by the pupils in a class.



a) What was the total number of pupils in the class?

b) What fraction of the pupils in the class read more than 3 story books?

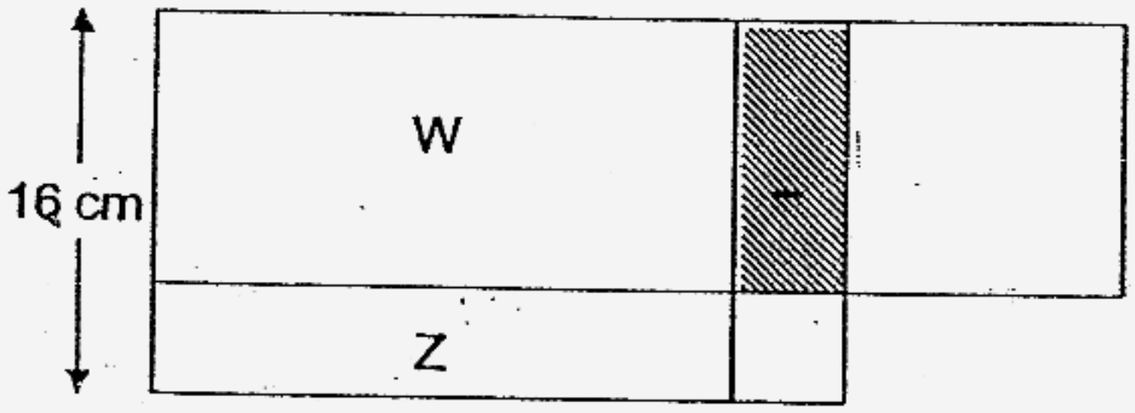
c) What is the total number of story books read?

Answer: (a) _____ [1]

(b) _____ [1]

(c) _____ [2]

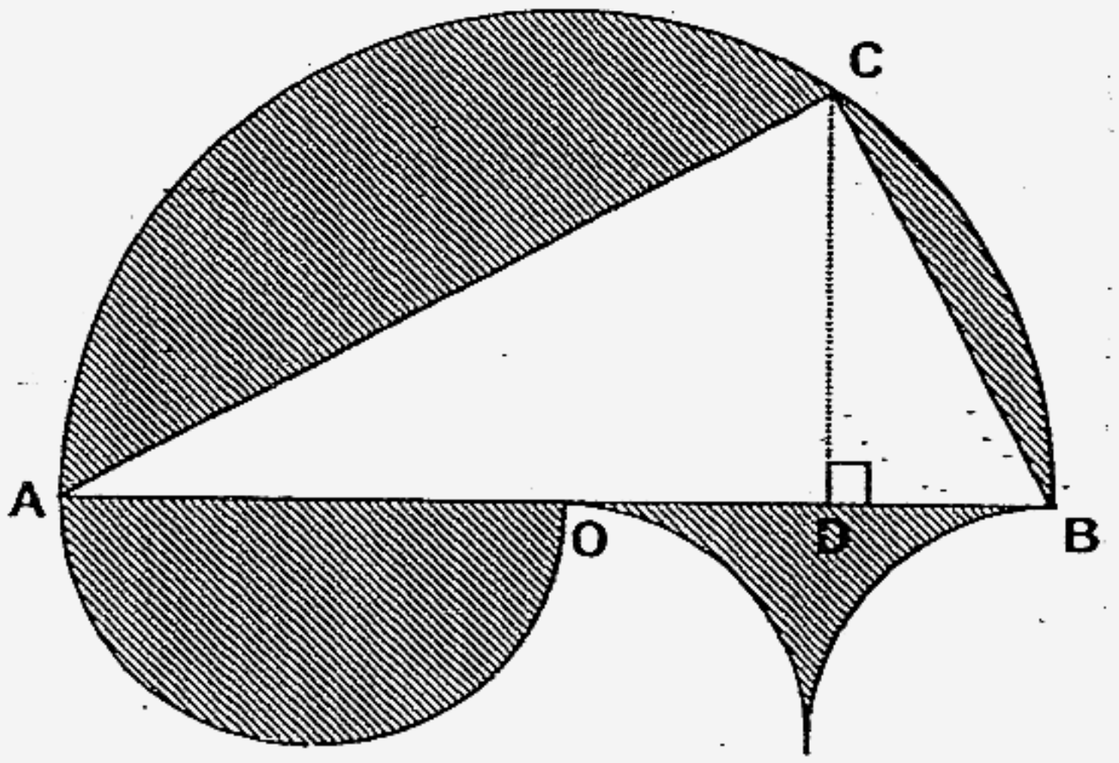
45. The figure is made up of 3 rectangles and 2 squares. The bigger square has an area of 144 cm².
(a) Find area of the shaded rectangle.
(b) If area of rectangle Z is 5 times area of small square, find area of rectangle W.



Answer : (a) _____ [2]

(b) _____ [3]

46. The figure below is made up of 2 semi-circular arcs and 2 quarter arcs. A triangle ABC is drawn in the bigger semicircle. AB is 28 cm. O is the mid-point of AB. CD is 10 cm.
Find
(a) the perimeter of the figure
(b) the area of the shaded parts
[Take $\pi = \frac{22}{7}$]



Answer : (a) _____ [2]

(b) _____ [3]

47 Study the patterns formed by black and white tiles below and answer the following questions.

Pattern 1 Pattern 2 Pattern 3 Pattern 4

a) Using the series of patterns above, complete the table below.

Pattern	No. of Black Tiles	No. of White Tiles	Total No. of Tiles
1	3	1	4
2	6	3	9
3	9	7	16
4	12	13	25
5			

[3 marks]

b) Find the total number of tiles in Pattern 10.

Answer : _____ [2]

48. There are some oranges in 3 boxes, A, B and C. 40% of the number of oranges in Box A is equal to 25% of the number of oranges in Box B. The number of oranges in Box C is $\frac{1}{3}$ of the number of oranges in Box B.

a) Express the number of oranges in Box C as a fraction of the number of oranges in Box A.

b) If $\frac{1}{2}$ of the oranges in Box B are taken out and placed in Box C, there will be 36 oranges left in Box B. How many oranges are there in Box C?

c) What is the total number of oranges?

Answer : (a)_____[2]

(b) _____[2]

(c) _____[1]

~~ the end ~~

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

16. 0.47
17. 13
18. 5a + 4
19. $98cm^2$
20. Smallest 81
    Biggest 87
21. 12 mugs
22. 4320
23. 0227
24. $17\frac{1}{4}$ km/hr
25. $12\frac{2}{3}$ km
26. 36
27. $2\frac{2}{5}$ mins
28. 2
29. \$ (72 + 36p)
30. (1) 12
    (2) 5
31. 11cm
32. 
33. 4 units = 16
    1 unit = 4

$$D = 4 \times 10\frac{1}{2}$$
$$= 4 \times \frac{21}{2}$$
$$= 42$$

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34. $(1 \times 6) + (2 \times 5) + (3 \times 3) + (4 \times 4) + (5 \times 6)$
$= 6 + 10 + 9 + 16 + 30$
$= 71$ books

35.

Apples	:	Pears
5	:	8
25	:	40

60% sold

40% left $= \frac{40}{100} \times 4$
$= 16$

$25 - 16 = 9$

Percentage $= \frac{9}{25} \times 100$
$= 36\%$

36a. $\angle x = 68^\circ$
$\angle y = 180^\circ - 93^\circ = 67^\circ$
$\angle z = 180^\circ - (67^\circ + 68^\circ) = 45^\circ$

37. $\frac{3.14}{2} \times 2 = 3.14$
Perimeter $= 6.28 \times 3 + 2 + 3.14$
$= 18.84 + 5.14$
$= 23.98$cm

The perimeter of the shaded figure is 23.98cm

38. $\frac{180 - 39}{2}$
$= \frac{141}{2}$
$= 70\frac{1}{2}$

a. $\angle AEO = 70\frac{1}{2}^\circ$

b. $88 + 28 = 116^\circ$

c. $\angle AOF = 116^\circ$

39. She answered 7 world problem correctly.

40. $\$4 \times 40 = \$160 + 8 = \$168$
$\$2 \times 40 = \$80 + 4 = \$84$
$84 was contributed by Mr. Lee

41.

Tap A	Tap B
1 min = 20ℓ	1 min = 50ℓ
6 mins = 20 x 6	20ℓ = 15
= 120ℓ	15 = 5ℓ
	10 mins = 10 x 5
	= 50 ℓ

There was 170ℓ of water in the tank.

42. He spend $3.50 on each day.

43a. **9.40am**
43b. **40mins**

44a. **40**
44b. **10 + 8 = 18**

$$\frac{18}{40} = \frac{9}{20}$$

The fraction is $\frac{9}{20}$

44c. **(1 x 6)+(2 x 7)+(3 x 9)+(4 x 10)+(5 x 8)**
= 6 + 14 + 27 + 40 + 40
= 127

45. **Shaded = 12 x 4 = 48cm²**
W = 20 x 12 = 240cm²

a. **The area is 48cm²**
b. **The area of rectangie W is 240cm²**

46a. **The perimeter is 88cm**
46b. **The area is 266cm²**

47. **Pattern 10 = 11 x 11**
= 121

48a. **The fraction is** $\frac{8}{15}$
48b. **There are 24 oranges in Box C**
48c. **The total number is 141**

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