NAN HUA PRIMARY SCHOOL
MID YEAR EXAMINATION – 2021
PRIMARY 6

MATHEMATICS
PAPER 1
(BOOKLET A)

Total Time for Booklets A and B: 1 hour

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
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 for Questions 1-15.
6. The use of calculators is **NOT** allowed.

Name : _____ _____ ( )

Class : 6_____

Date : 17 May 2021 **Parent's Signature :**_____

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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 and shade your answer (1, 2, 3 or 4) on the Optical Answer Sheet. (20 marks)

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1. What is the value of five million, fifty-five thousand, five hundred and five?

   (1) 5 550 550

   (2) 5 550 505

   (3) 5 505 055

   (4) 5 055 505

2. Which of the following is a common multiple of 4 and 6?

   (1) 8

   (2) 2

   (3) 12

   (4) 18

3. Divide $\frac{3}{4}$ by 4.

   (1) $\frac{3}{16}$

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

   (3) 3

   (4) $5\frac{1}{3}$

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4. Express $\frac{5}{8}$ as a decimal.

(1) 0.58

(2) 0.625

(3) 1.6

(4) 5.8

5. Divide $\frac{1}{3}$ by $\frac{1}{9}$.

(1) $\frac{1}{27}$

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

(3) 3

(4) 27

6. Simplify the following algebraic expression.

$15m + 12 - 9m - 8$

(1) $24m - 20$

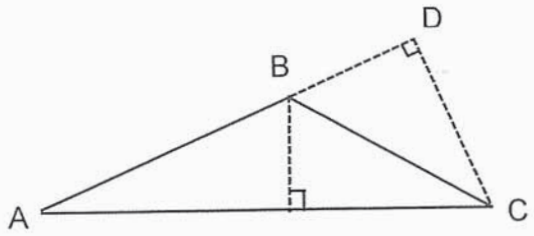
(2) $24m + 4$

(3) $6m - 20$

(4) $6m + 4$

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7. Given that the height of triangle ABC is DC, find the base that is related to the height DC.



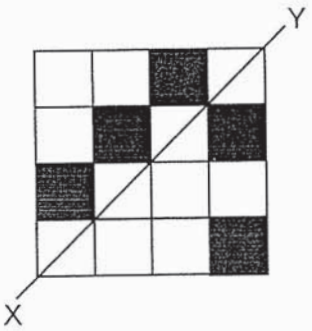
(1) AB

(2) AD

(3) CA

(4) BD

8. What is the least number of squares that must be shaded so that line XY is a line of symmetry?



(1) 1

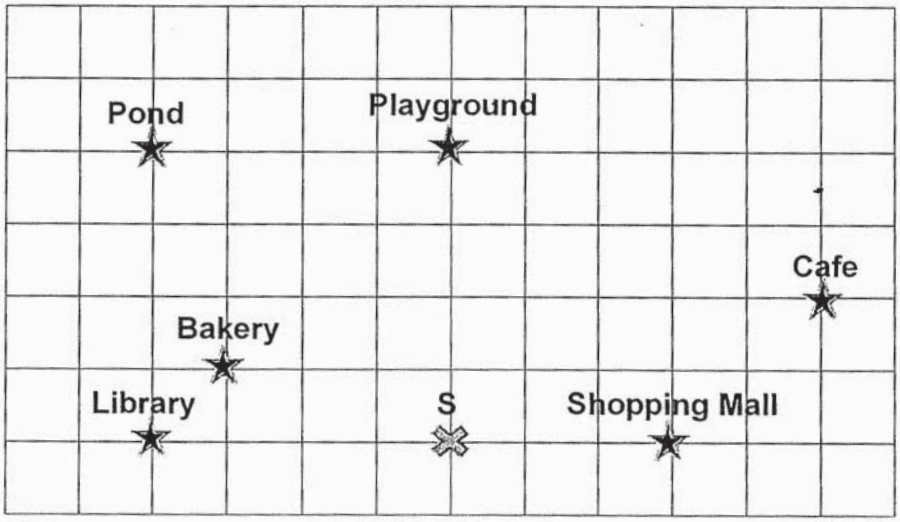
(2) 2

(3) 3

(4) 4

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9. In the square grid below, Ray is at Point S, facing the playground. If he makes a $\frac{1}{4}$ – turn in a clockwise direction and another 135° turn in an anticlockwise direction, where will Ray be facing?





(1) Bakery

(2) Library

(3) Pond

(4) Cafe

10. Mrs Chen bought a cake. She ate $\frac{1}{4}$ of the cake. Her sister ate $\frac{5}{12}$ of the cake. What fraction of the cake was left?
(Express your answer in its simplest form.)

(1) $\frac{1}{6}$

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

(3) $\frac{1}{2}$

(4) $\frac{2}{3}$

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11. Leroy and Devina share \$26p. Leroy has \$4p less than Devina.
If $p = 6$, how much money does Leroy have?

(1) \$24

(2) \$66

(3) \$90

(4) \$132

12. $\frac{4}{9}$ of the people at a carnival were adults and the rest were children.
The number of boys was twice the number of girls. What was the ratio of the number of boys to the number of adults?

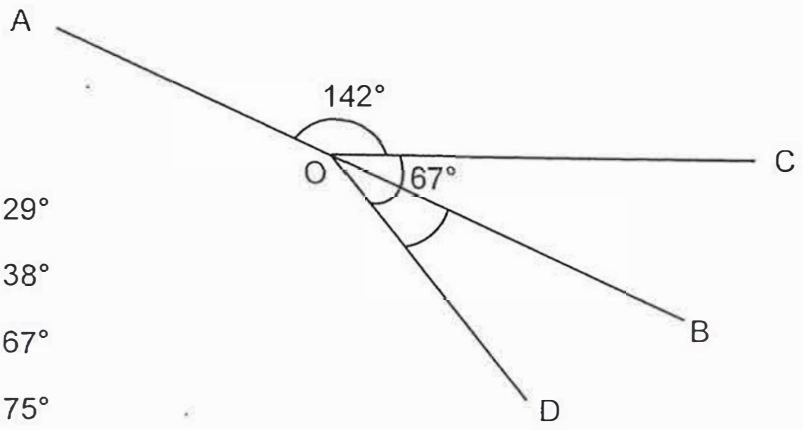
(1) 1 : 2

(2) 5 : 2

(3) 5 : 6

(4) 2 : 3

13. In the figure below, AB is a straight line. $\angle AOC = 142°$ and $\angle COD = 67°$.
Find $\angle BOD$.



(1) 29°

(2) 38°

(3) 67°

(4) 75°

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14. Mr Toh prepared 3 ℓ of lemonade. He drank 250 mℓ of lemonade and poured the rest equally into 5 bottles. How much lemonade was there in each bottle? Give your answers in litres.

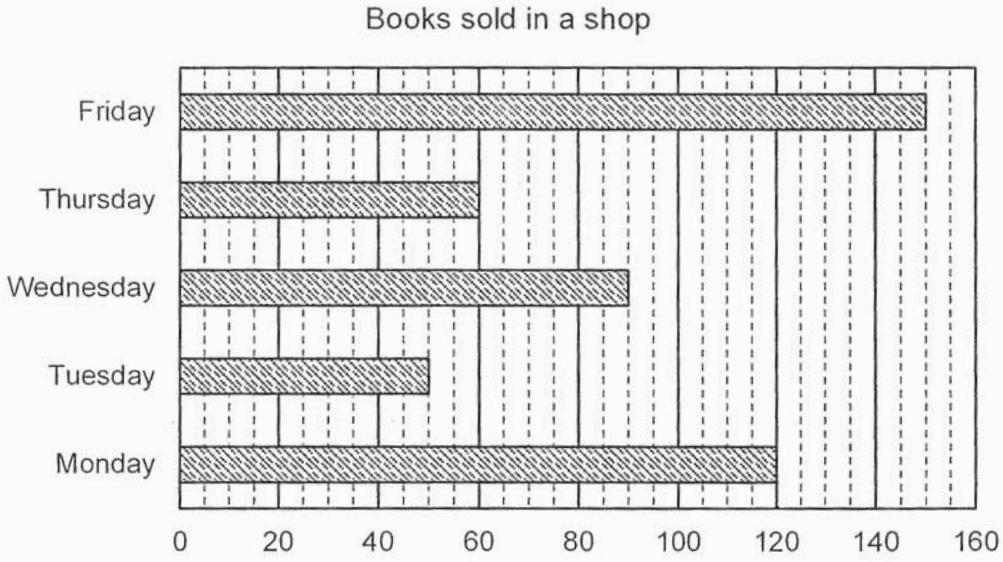
(1) 0.055 ℓ

(2) 0.550 ℓ

(3) 5.500 ℓ

(4) 55.00 ℓ

15. The graph below shows the number of books sold in a shop during a sale from Monday to Friday.



What is the average number of books sold from Monday to Thursday?

(1) 470

(2) 320

(3) 94

(4) 80

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Questions **16** to **20** carry 1 mark each. Write your answers in the spaces provided. For questions which require units, give your answers in the units stated. [5 marks]

Do not write in this space

16. Find the value of $96 - 30 \div 6 \times (9 + 3)$.

Ans : _____

17. List out all the common factors of 20 and 36.

Ans : _____

18. Joshua started fixing a puzzle at 19 25. He completed the puzzle in 45 minutes. What time did Joshua complete the puzzle?
Leave your answer in 24-hour clock.

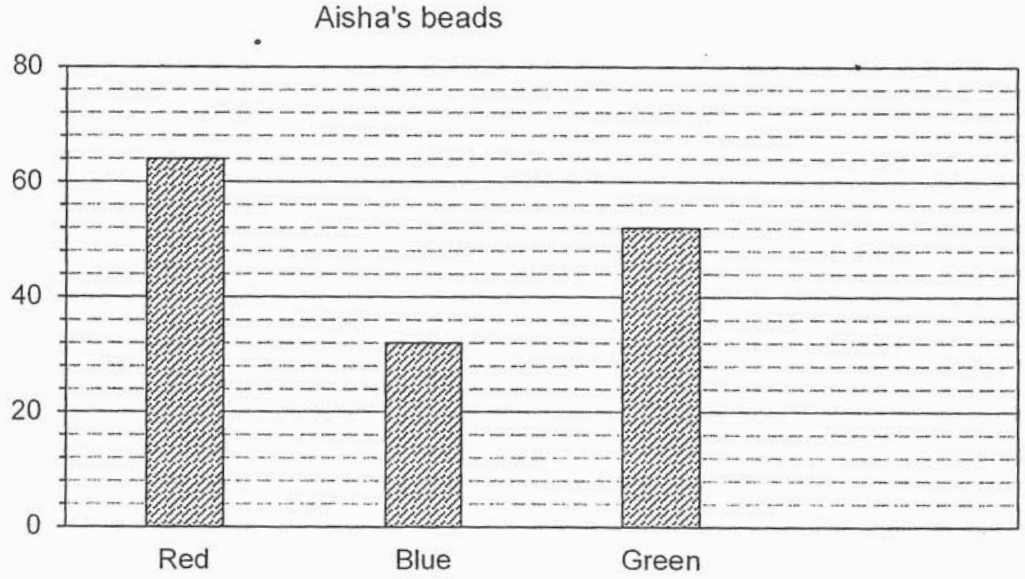
Ans: _____

Subtotal	/ 3

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19. The bar graph below shows the number of beads Aisha collected. What is the difference between the number of green and red beads that Aisha collected?

Do not write in this space



Ans : _____

20. What is the missing number in the box?

$$\frac{8}{12} = \frac{\square}{9}$$

Ans : _____

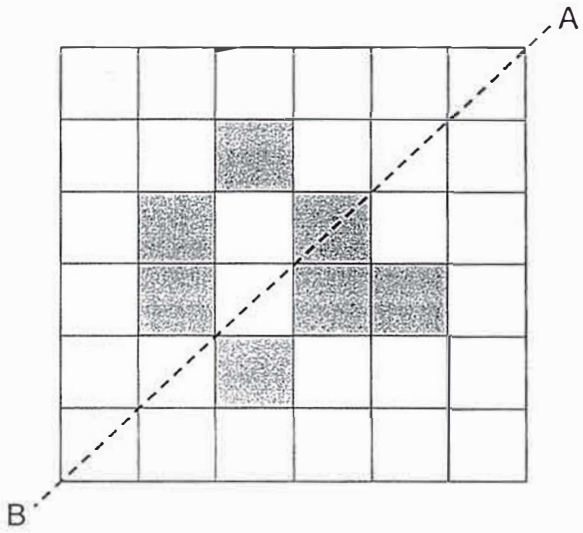
Subtotal	/ 2

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Questions **21** to **30** carry 2 marks each. Show your working clearly in the space provided for each question and write your answers in the spaces provided. For each questions which require units, give your answers in the units stated. [20 marks]

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21. There are 7 shaded squares in the figure. Shade 2 more squares to form a symmetric figure with AB as the line of symmetry.



22. Using the line AB provided below, construct ∠ABC = 140°.

A B

Subtotal	/ 4

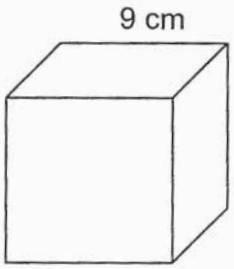
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23. Mdm Salmah bought 5 mangoes and 4 apples for $13.80. An apple cost 60 cents less than a mango. Find the cost of each mango.

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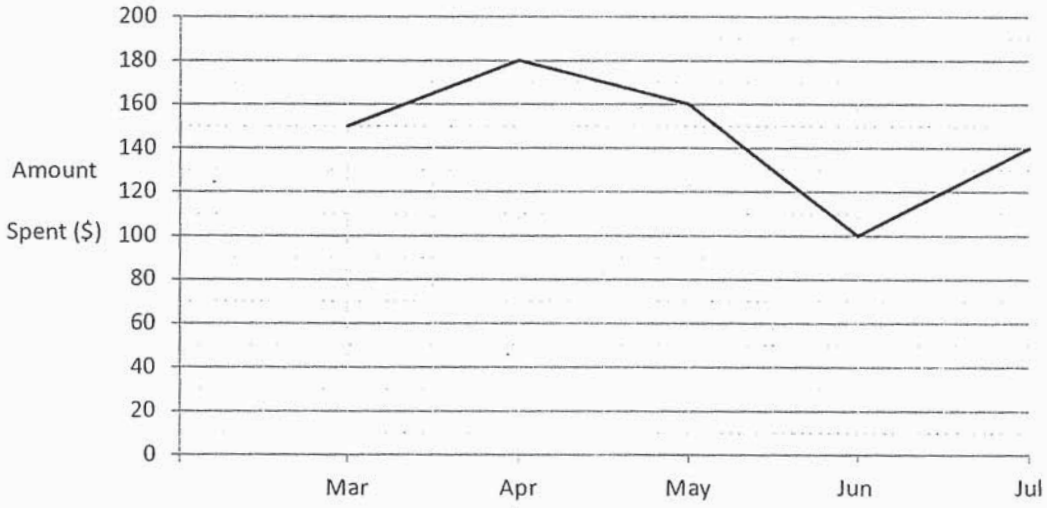
Ans : $_____

24. The edge of the cube is 9 cm. Find the volume of the cube.



Ans : _____ cm^3

25. The line graph below shows the amount of money Rayden spent each month from March to July.



What was the average amount of money Rayden spent per month from March to July?

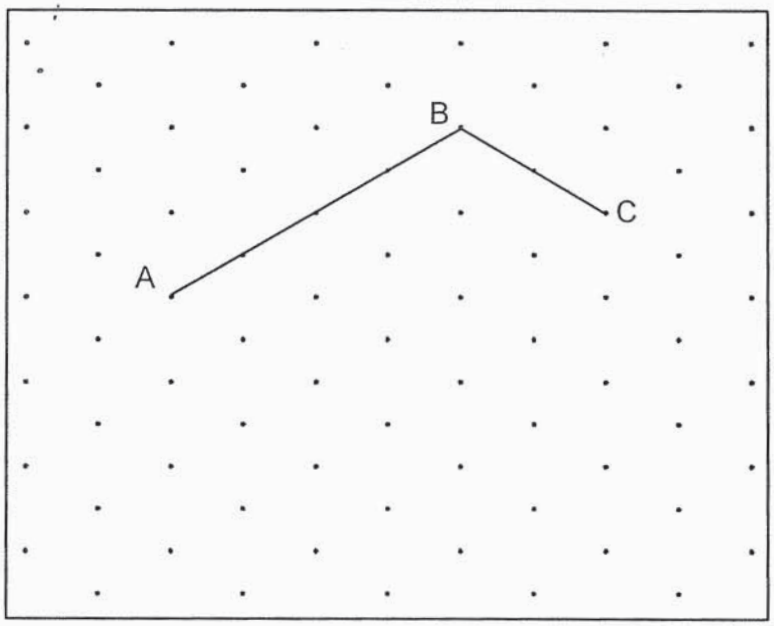
Ans : $_____

Subtotal	/ 6

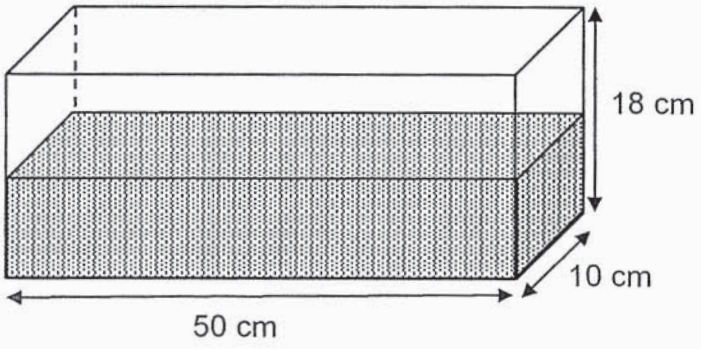
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26. AB and BC are two sides of a trapezium. AB//DC and the length of AB is $\frac{2}{3}$ the length of CD. Complete the trapezium by drawing the other two sides in the isometric grid and label it.

Do not write in this space



27. The tank shown below will be filled to the brim if 5 ℓ of water is added into the tank. What is the volume of water in the tank?



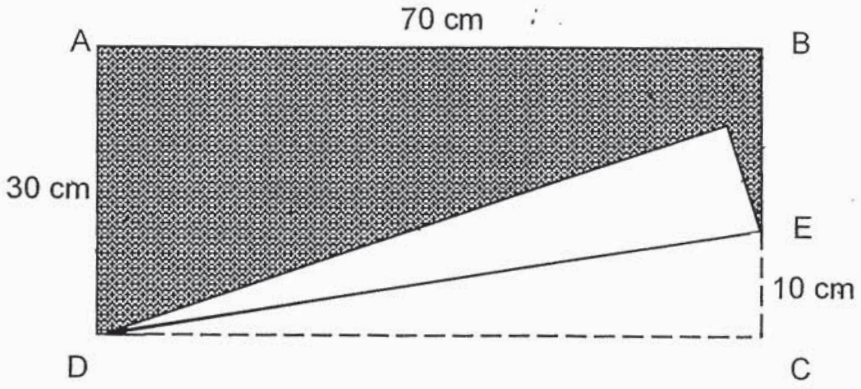
Ans : _____ cm^3

Subtotal	/ 4

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28. In the figure below, not drawn to scale, shows a rectangular piece of paper ABCD. It is folded along the line DE where EC is 10 cm. Find the area of the shaded part.

Do not write in this space



Ans : _____ cm²

29. At a bakery, there were *n* strawberry cupcakes. The number of strawberry cupcakes was three times the number of chocolate cupcakes. The number of durian cupcakes was 12 more than the number of chocolate cupcakes.

Each of the statements below is either true, false or impossible to tell from the information given. For each statement, put a tick (√) to indicate your answer.

Statement	True	False	Not possible to tell
There were more strawberry cupcakes than durian cupcakes.			
The value of *n* is a multiple of 3.			

Subtotal	/ 4

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30. The table below shows the response of a group of children on their favourite colour. How many girls chose red as their favourite colour?

Do not write in this space

Favourite Colour	Number of boys	Number of girls	Number of children
Red	25		
Green	32	14	46
Yellow	12	18	30
Total			150

Ans: _____

END OF PAPER 1

Subtotal	/ 2

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NAN HUA PRIMARY SCHOOL
MID YEAR EXAMINATION – 2021
PRIMARY 6

MATHEMATICS
Paper 2

Total Time for Paper 2: 1 hour 30 minutes

INSTRUCTION TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully
4. Answer all questions.
5. Write your answers in this booklet.
6. The use of an approved calculator is expected, where appropriate.

Marks Obtained

Total	Max Mark
	55

Name : _____( )

Class : 6_____

Date : 17 May 2021

Parent's Signature :_____

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Paper 2 (55 marks)

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Questions **1** to **5** carry 2 marks each. Show your workings clearly and write your answer in the space provided. For questions which require units, give your answers in the units stated. (10 marks)

1. The table shows the time taken by 5 students to complete their homework.

Student	Time in minutes
A	35
B	40
C	25
D	40
E	30

What was the average time taken by the 5 students to complete their homework?

Ans: _____ min

2. The ratio of Abdul's money to Josephine's money is 4 : 5.
What is the ratio of Abdul's money to Josephine's money after Josephine spends $\frac{1}{4}$ of her money?

Ans: _____

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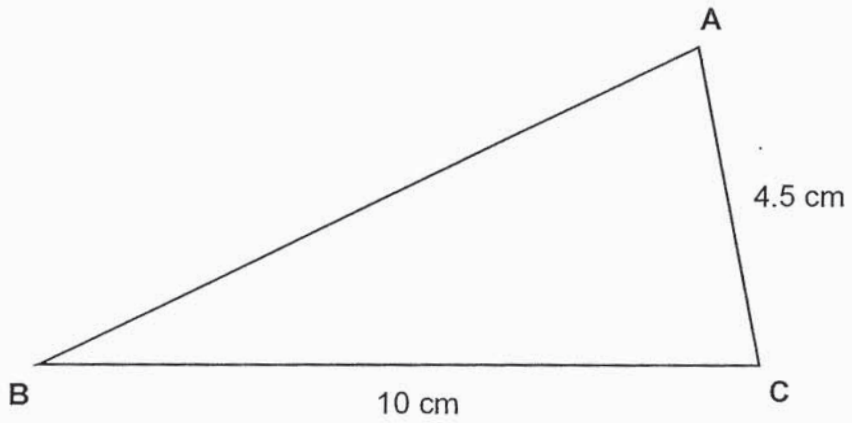
3. The table shows the postage charges for sending letters to Japan.

Mass	Cost
First 20 g	80 cents
Every additional 10 g	25 cents

Jonathan posted a letter to his friend in Japan. The mass of the letter is 92 g. How much did he pay for the postage?

Ans: $_____

4. Measure the length of AB and write down the perimeter of Triangle ABC to the nearest 0.1 cm.



Ans: _____ cm

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5. Katelyn's average score in four tests is 76. She scored 70 for her first test and the same score for the remaining three tests. What is the score for each of the remaining three tests?

Do not write in this space

Ans: _____

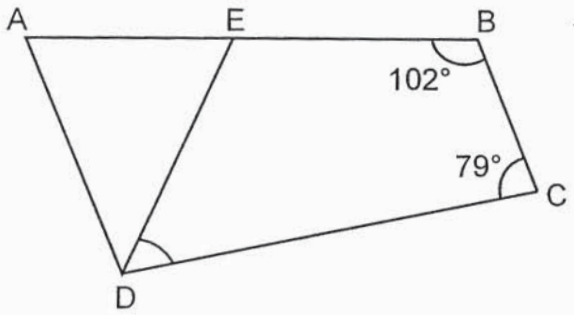
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For questions **6** to **17**, show your working clearly and write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part-question. (45 marks)

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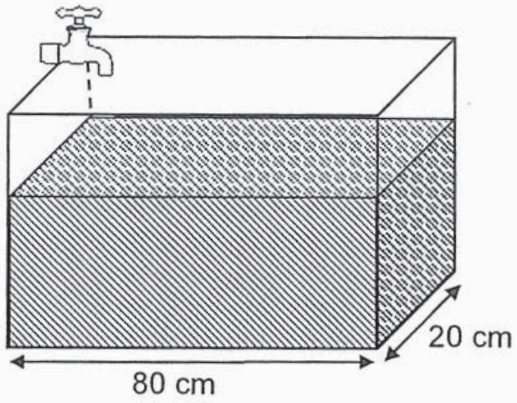
6. In the figure below, not drawn to scale, ABCD is a trapezium and AD // BC. AEB is a straight line and DAE is an isosceles triangle where DA = DE. Given that ∠ABC = 102° and ∠BCD = 79°, find ∠CDE.



Ans: _____[3]

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7. A rectangle tank is $\frac{2}{3}$ filled with water. There is 48 ℓ of water in the tank. More water flows into the tank at a rate of 3 ℓ per minute. How long will it take to fill the tank completely?



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Ans: _____[3]

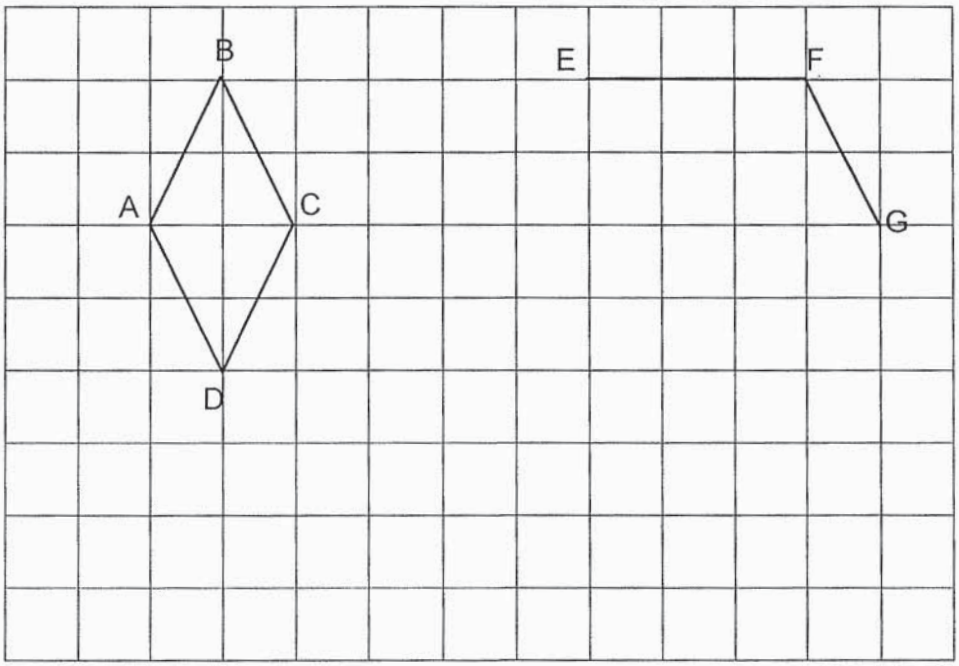
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8. In the square grid below, ABCD is a rhombus.

(a) Measure and write down the value of ∠DAB.

(b) EF and FG form two sides of a trapezium. Complete the drawing of trapezium EFGH such that the area of trapezium EFGH is twice the area of rhombus ABCD. [2]

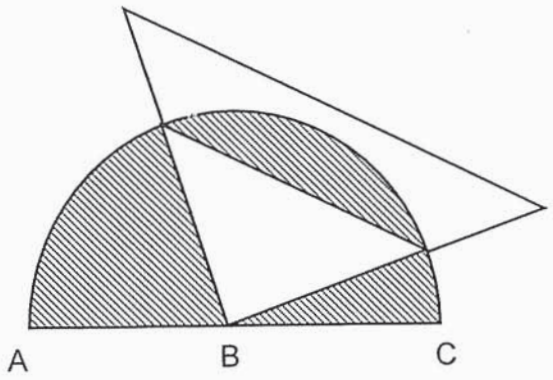


Ans: (a) _____ [1]

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9. The figure below is formed by a semicircle with centre B and 2 right-angled triangles. The length of AC is 52 cm. Find the total area of the shaded parts in the figure.
(Take $\pi = 3.14$)

Do not write in this space



Ans: _____[3]

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10. Jennifer bought storybooks and files from a book store during a sale. She paid a total of $93.70 and spent $5.50 more on the files than on the storybooks. She received a 20% discount on the files and the total discount given for all the items was $27.10.

(a) What was the discount given for the storybooks?

(b) What was the percentage discount given for the storybooks?

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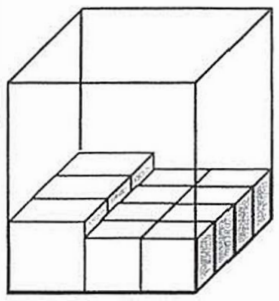
Ans: (a) _____[3]

(b) _____[2]

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11. Judy has 9 identical large cubes and some identical small cubes.
She packs all the cubes tightly into a rectangular box such that cubes of the same size are stacked on top of each other. The box is filled to its brim exactly.

Do not write in this space



(a) How many small cubes does Judy have?

Ans: _____[1]

(b) Each of the statement below is either true, false or not possible to tell from the information given in the question above. For each statement, put a tick (✓) to indicate your answer.

Statement	True	False	Not possible to tell
The total volume of all the small cubes Judy had is greater than the total volume of the 9 large cubes.			
The length of a large cube is twice the length of a small cube.			

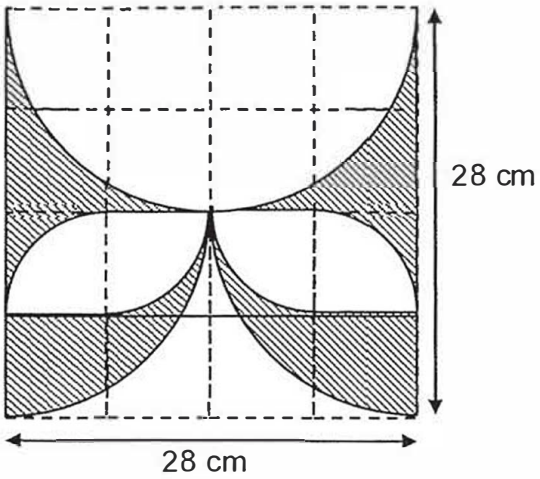
[2]

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12. The shaded figure below is formed by semicircles and quarter circles.

(a) Find the area of the shaded figure.

(b) Find the perimeter of the shaded figure. (Take $\pi = \frac{22}{7}$)



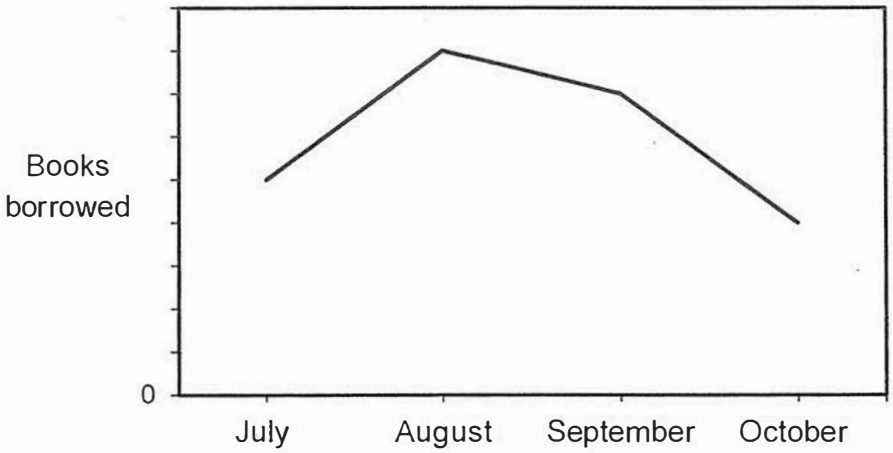
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Ans: (a) _____ [3]

(b) _____ [2]

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13. The line graph shows the number of books borrowed by Class 6B from July to October. The number of books borrowed is not shown on the scale.

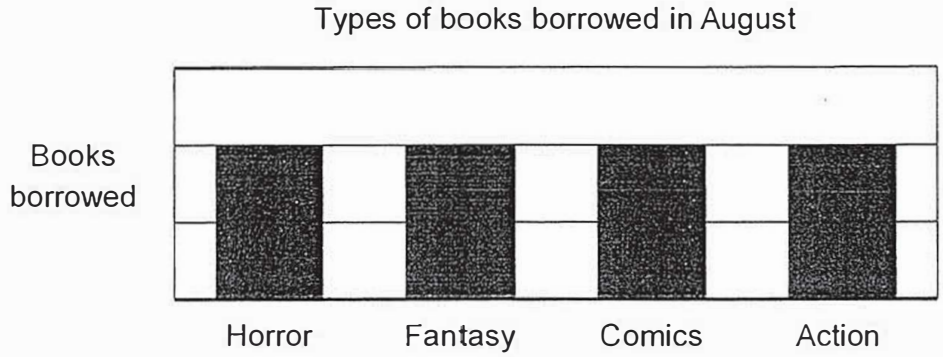


(a) The average number of books borrowed from July to October was 24. How many books did 6B borrow in September?

Ans: (a) _____[2]

(b)

The bar graph below shows the types of books borrowed in August. How many comic books did 6B borrow in August?



(b) _____[2]

Do not write in this space

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14. Celine had a total of 87 gold stars and silver stars. She exchanged all her gold stars for silver stars. After she exchanged each gold star for 5 silver stars, she had 231 silver stars in the end. How many gold stars did she have at first?

Do not write in this space

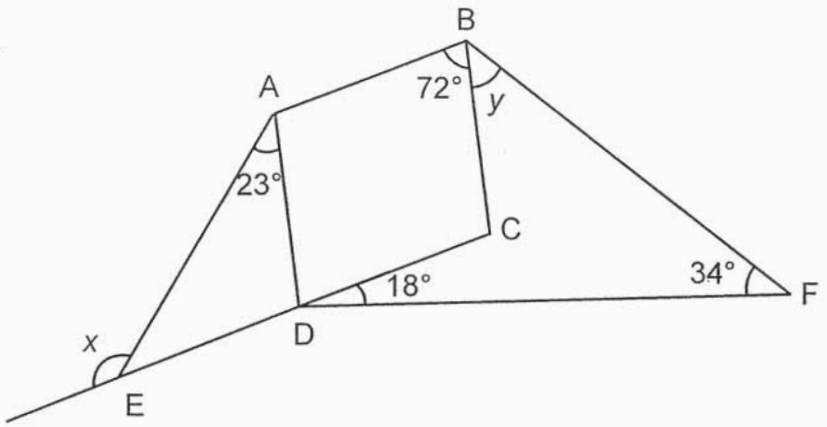
Ans: _____[3]

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15. In the diagram below, not drawn to scale, ABCD is a rhombus. CDE is a straight line. ∠ABC = 72°, ∠DAE = 23°, ∠CDF = 18° and ∠BFD = 34°

(a) Find ∠x.

(b) Find ∠y.



Do not write in this space

Ans: (a) _____[2]

(b) _____[2]

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16. The diagram below shows 4 figures formed by triangles and squares

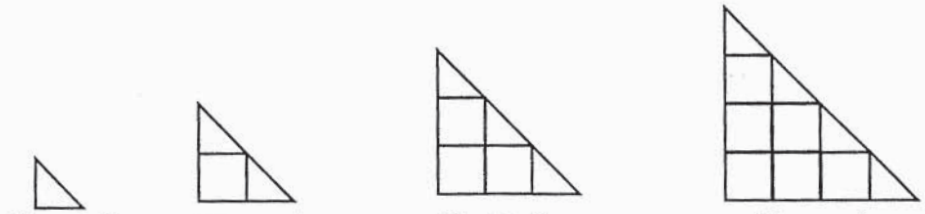


Figure 1 Figure 2 Figure 3 Figure 4

Do not write in this space

(a) Fill in the table for Figure 8. [1]

(b) Find the number of squares in Figure 15.

(c) The total number of triangles and squares of a figure is 120.
What is the figure number?

Figure Number	Number of triangles	Number of squares	Total number of triangles and squares
1	1	0	1
2	2	1	3
3	3	3	6
4	4	6	10
. . .	. . .	. . .	. . .
8	8	(i)_____	(ii)_____

Ans: (b) _____[2]

(c) _____[2]

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17. Mr Kum had 160 more apples than pears. He sold $\frac{5}{8}$ of the apples and $\frac{1}{3}$ of the pears. At the end of the day, he had 38 more pears than apples left. What was the total number of apples and pears that Mr Kum had at first?

Do not write in this space

Ans: _____[4]

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NHPS MYE 2021
P6 MATHEMATICS

Paper 1

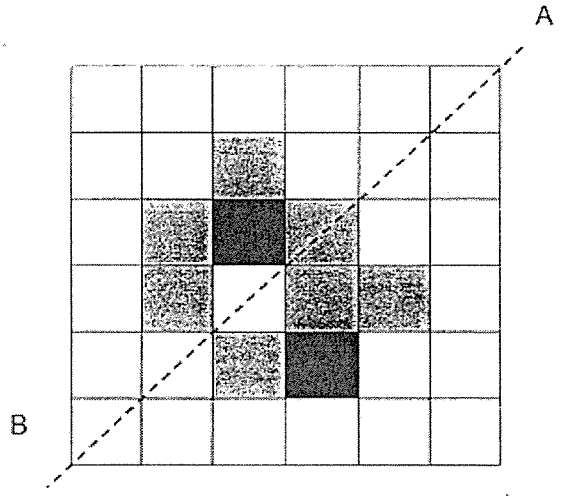
1)	4	6)	4	11)	2
2)	3	7)	1	12)	3
3)	1	8)	3	13)	1
4)	2	9)	3	14)	2
5)	3	10)	2	15)	4

Section B (20 marks)
Questions 16 to 20 carry 1 mark each.
Questions 21 to 30 carry 2 marks each.

16)	36
17)	1, 2 and 4
18)	20 10
19)	12
20)	6

Note: Q21 to 30 carry 2 marks each

21.



22. To construct ∠ABC accurately.
∠ ABC = 140° (± 1°)

23. 5 x 60¢ = $3
$13.80 – $3 = $10.80
$10.80 ÷ 9 = $1.20
$1.20 + 60¢ = **$1.80**

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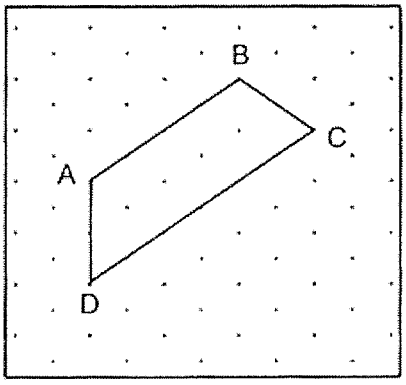
OR
4 x 60¢ = $2.40
$13.80 + $2.40 = $16.20
$16.20 ÷ 9 = **$1.80**

24. 9 cm x 9 cm x 9 cm = 729 cm³

25. 150 + 180 + 160 + 100 + 140 = 730

$\frac{730}{5}$ = **146**

26.



27. Vol = 50 cm x 10 cm x 18 cm – 5 000 cm³
= 9 000 cm³ – 5 000 cm³
= **4 000 cm³**

28. Area of CDE = ½ x 70 cm x 10 cm
= **350 cm²**

Area of ABCD = 30 x 70 = 2100
Area of shaded part = 2100 – 350 – 350 = **1400 cm²**

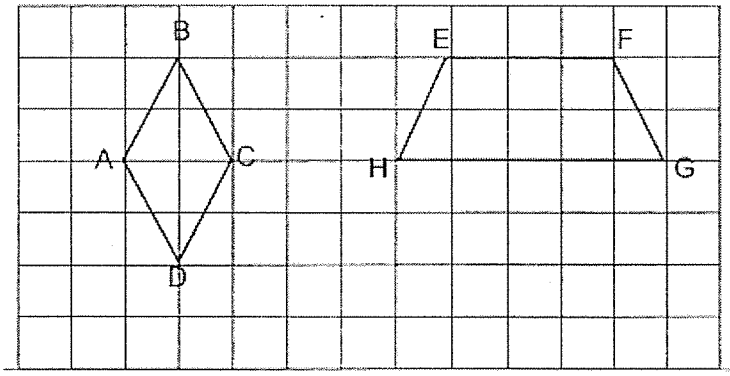
29.

Statement	True	False	Not possible to tell
There were more strawberry cupcakes than durian cupcakes.			√
The value of *n* is a multiple of 3	√		

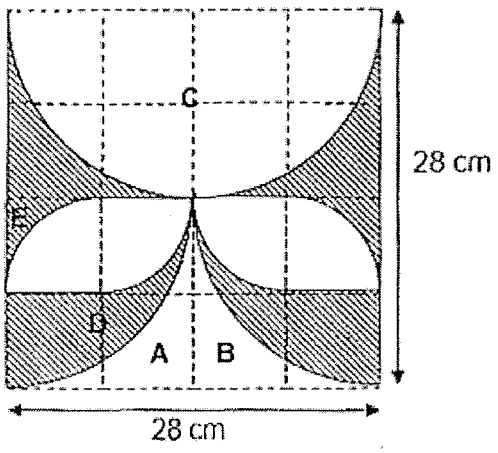
30. 150 – 46 – 30 = 74 (number of children who chose red)
74 – 25 = **49** (number of girls who chose red)

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Paper 2

1.	$35 + 40 + 25 + 40 + 30 = 170$ $170 \div 5 =$ **34**
2.	$4 : 5 = 16 : 20$ $20u - 5u = 15u$ **A : J** **16 : 15**
3.	$80¢ + 8 \times 25¢ =$ **$2.80**
4.	$4.5 \text{ cm} + 10 \text{ cm} + 10.2 \text{ cm} = 24.7 \pm 0.1 \text{ cm}$
5.	$76 \times 4 = 304$ $304 - 70 = 234$ $234 \div 3 =$ **78**
6.	$\angle BAD = \angle AED$ $= 180° - 102°$ $= 78°$ $\angle ADE = 180° - 2 \times 78°$ $= 24°$ $\angle CDE = 180° - 24° - 79°$ $=$ **77°** OR $\angle BAD = \angle AED$ $= 180° - 102°$ $= 78°$ $\angle BED = 180° - 78°$ $= 102°$ $\angle CDE = 360° - 102° - 102° - 79°$ $=$ **77°**
7.	$\frac{1}{3}$ of the tank $\rightarrow 48 \div 2 = 24$ $24 \div 3 =$ **8**
8. (a) (b)	**127°** 
9.	Area of unshaded triangle $= \frac{1}{2} \times 26 \times 26 = 338$

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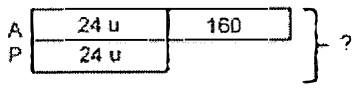
	Total shaded area $= \frac{1}{2} \times 3.14 \times 26 \times 26 - \frac{1}{2} \times 26 \times 26$ $= \underline{\mathbf{723.32\ cm^2}}$
10. (a)	($93.70 – $5.50) ÷ 2 = $44.10 Cost of files = $44.10 + $5.50 = $49.60 Usual price of files = $49.60 ÷ 0.8 = $62 Discount on files = $62 × 0.2 = 12.40 Discount on storybooks = $27.10 – $12.40 = **$14.70**
(b)	Cost of storybooks = $44.10 Usual price of storybooks = $44.10 + $14.70 = $58.80 % discount given for the storybooks = $14.70 ÷ $58.80 × 100% = **25%**
11. (a)	32
(b)	**True** **False**
12. (a)	Using cut and paste, Area of the shaded part $= 28 \times 14 - \frac{22}{7} \times 7 \times 7$ = **238 cm²** OR 

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(b)	$\frac{1}{2} \times \frac{22}{7} \times 14 \times 14 - \frac{22}{7} \times 7 \times 7 = 308 - 154$ $= 154$ $28 \times 14 - \frac{1}{2} \times \frac{22}{7} \times 14 \times 14 = 392 - 308$ $= 84$ $154\ cm^2 + 84\ cm^2 =$ **238 cm²** OR $14 \times 14 = 196$ $\frac{1}{2} \times \frac{22}{7} \times 7 \times 7 = 77$ $196 - 77 = 119$ $119 \times 2 =$ **238 cm²** OR $7 \times 7 = 49$ $\frac{1}{4} \times \frac{22}{7} \times 7 \times 7 = 38.5$ $49 - 38.5 = 10.5$ $10.5 \times 4 = 42$ $49 \times 4 = 196$ $196 + 42 =$ **238 cm²** $\frac{22}{7} \times 28 + \frac{22}{7} \times 14 + 3 \times 28 = 88 + 44 + 84$ $=$ **216 cm**
13. (a)	$6u = 24$ $1u = 4$ $7u = 28$
(b)	$32 \div 4 = 8$
14.	By assumption, $87 \times 5 = 435$ $435 - 231 = 204$ $204 \div 4 = 51$ $87 - 51 = 36$ OR $231 - 87 = 144$ $5 - 1 = 4$ $144 \div 4 = 36$ Or By Guess and Check

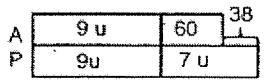
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15. (a)	∠ADE = 180° - 72° = 108° ∠AED = 180° - 108° - 23° = 49° ∠x = 180° - 49° = **131°** OR ∠x = 108° + 23° = **131°**
(b)	∠y = 360° - 72° - 34° - 18° - 72° - 108° (quadrilateral ABFD) = **56°** OR 360° - 108° = 252° 252° + 34° + 18° = 304° 360° - 304° = **56°**
16.	(i) **28** , (ii) **36** (b) 1 + 2 + 3 ..... + 13 + 14 = 7 × 15 = **105** (c) As there was an error in the question, all students were awarded 2m. This was supposedly the answer to the question. 105 + 15 = 120 **Figure number 15**
17.	Before  Finding $\frac{5}{8}$ of the excess = $\frac{5}{8}$ × 160 = 100 Apples sold $\frac{5}{8}$ × 24u = 15u and 100 apples left 24u – 15u = 9u and 160 – 100 = 60 apples Pears sold $\frac{1}{3}$ × 24u = 8u left 24u – 8u = 16u

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After



$7u = 60 + 38$

$= 98$

$1u = 98 \div 7$

$= 14$

$48u + 160 = 48 \times 14 + 160$

$= \mathbf{832}$

OR

$24 \times 14 + 160 = 496$

$24 \times 14 = 336$

$496 + 336 = \mathbf{832}$

OR

Using units and parts/ algebra (2 variables)

Apples → 8p

Pears → 3u

$8p - 3u = 160$ ----------(1)

$2u - 3p = 38$

$2u = 3p + 38$

$6u = 9p + 114$ ---------- (2)

(1): $8p = 3u + 160$

$16p = 6u + 320$ ---------- (3)

Substitute (2) into (3)

$16p = 9p + 114 + 320$

$7p = 434$

$p = 62$

$8p = 62 \times 8$

$= 496$

$2u = 3 \times 62 + 38$

$= 224$

$3u = 224 \div 2 \times 3$

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	= 336 496 + 336 = **832** OR Using algebra (1 variable) Apples → u + 160 Pears → u $(u + 160) \times \frac{3}{8} + 38 = \frac{2}{3} u$ $\frac{3}{8} u + 60 + 38 = \frac{2}{3} u$ $\frac{7}{24} u = 98$ U = 336 2 x 336 + 160 = **832**

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