NANYANG PRIMARY SCHOOL

PRELIMINARY EXAMINATION
2022

PRIMARY 6

MATHEMATICS
PAPER 1
(BOOKLET A)

Total Duration for Booklets A and B: 1 hour

Additional materials: Optical Answer Sheet (OAS)

INSTRUCTIONS TO PUPILS

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers in the Optical Answer Sheet (OAS) provided.
5. The use of calculators is NOT allowed.

Name: ______________________________ (   )

Class: Primary 6 (   )

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) and shade your answer on the Optical Answer Sheet. (20 marks)

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1 Round 748 850 to the nearest hundred.

(1) 748 800

(2) 748 900

(3) 748 950

(4) 749 000

2 10 hundredths and 75 thousandths is ____________

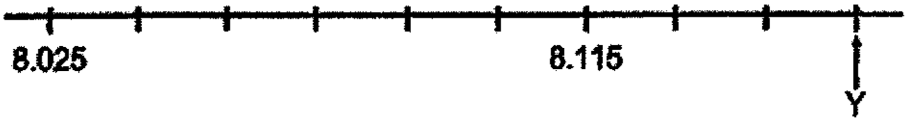
(1) 0.085

(2) 0.175

(3) 0.760

(4) 0.850

3 In the number line below, what is the value of Y as indicated by the arrow?



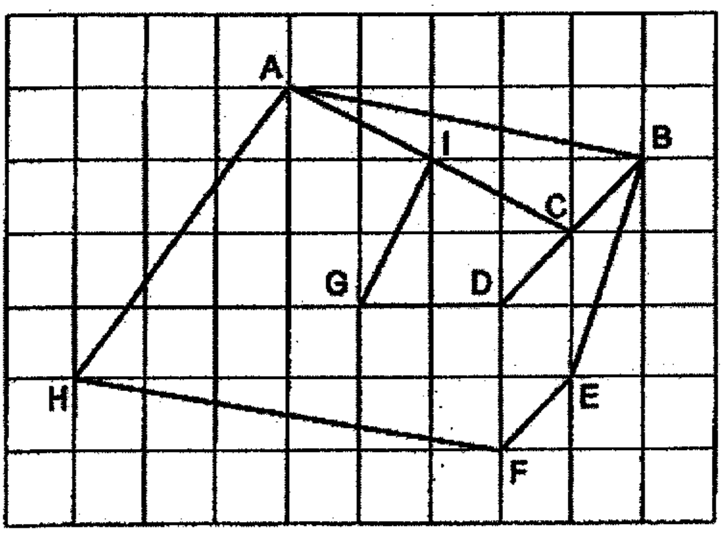
(1) 8.130

(2) 8.145

(3) 8.160

(4) 8.175

4 Which pair of lines in the square grid are parallel?



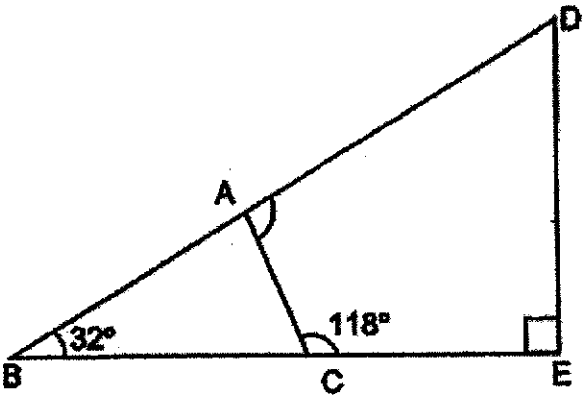
(1) AH and BE

(2) GI and AC

(3) AB and HF

(4) BD and EF

5 BCE and DAB are straight lines. Find ∠DAC.



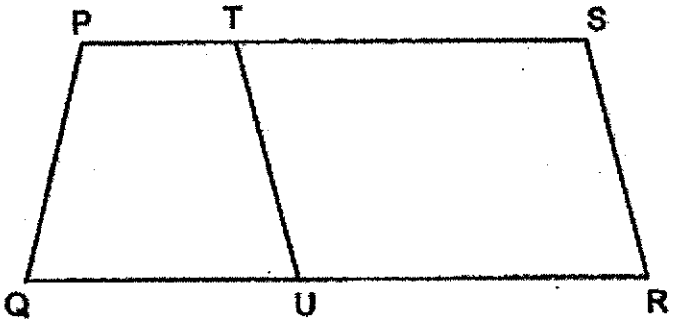
(1) 148°

(2) 94°

(3) 86°

(4) 62°

6 PQRS is a trapezium and RSTU is a parallelogram.



Which of the following pair of angles gives a sum of 180°?

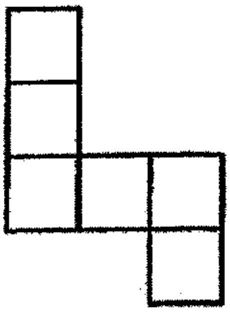
(1) ∠QPT and ∠PTU

(2) ∠TSR and ∠UTS

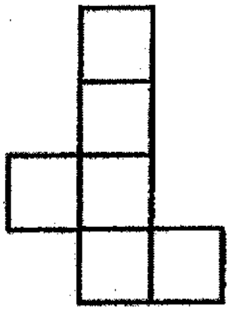
(3) ∠TUR and ∠TSR

(4) ∠PQU and ∠URS

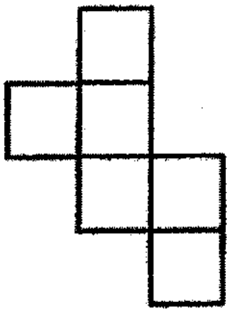
7 Which two of the following are nets of a cube?



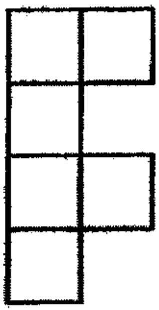
A



B



C



D

(1) A and B

(2) A and C

(3) B and C

(4) C and D

8 Huiling had $z. Ravi had twice as much money as Huiling. Jas had $5 more than Ravi. If Jas had $10, how much money did Huiling have?

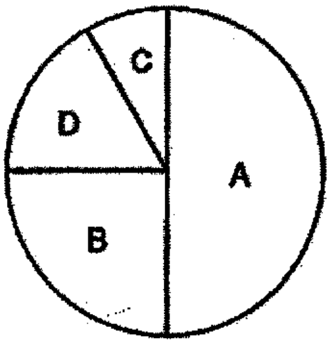
(1) $30

(2) $7.50

(3) $3

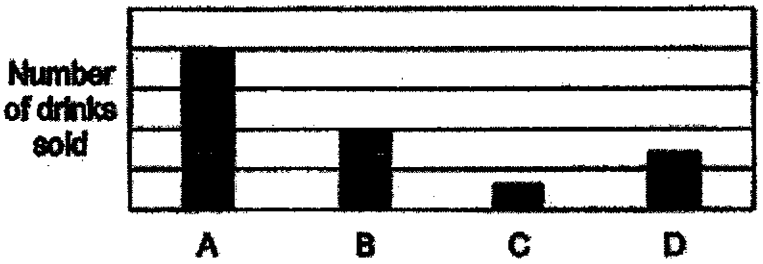
(4) $2.50

9 The pie chart shows the number of four types of drinks sold in the school canteen.

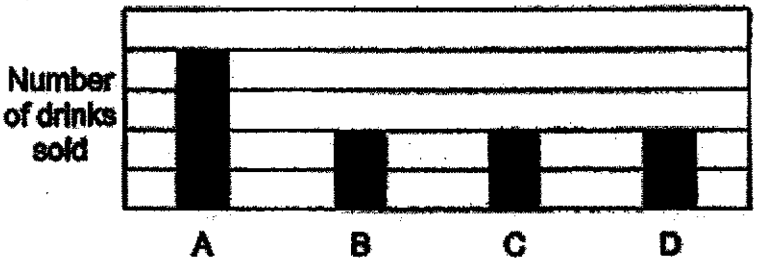


Which bar graph best represents the information in the pie chart?

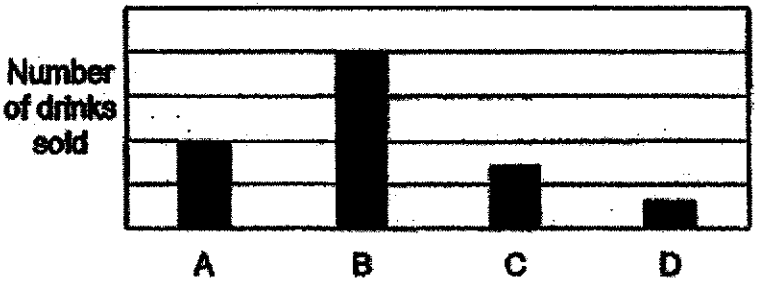
(1)



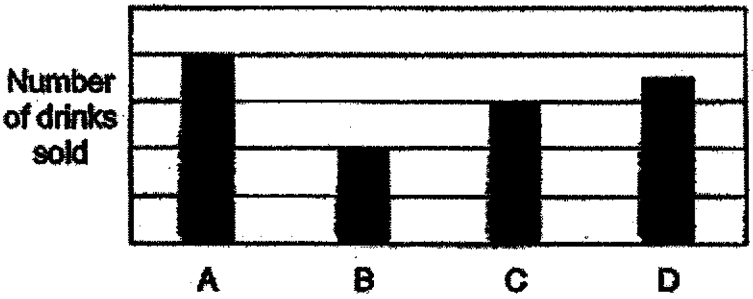
(2)



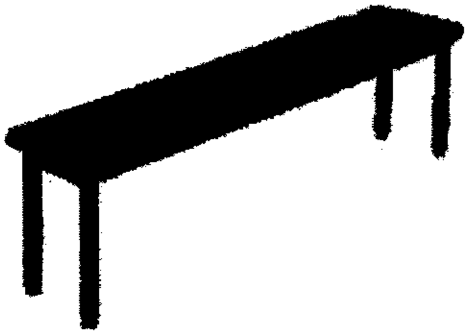
(3)



(4)



10 Which of the following is likely to be the length of a bench in the school canteen?



(1) 1.8 cm

(2) 18 cm

(3) 1.8 m

(4) 18 m

11 Which of the following fractions is closest to $\frac{4}{5}$?

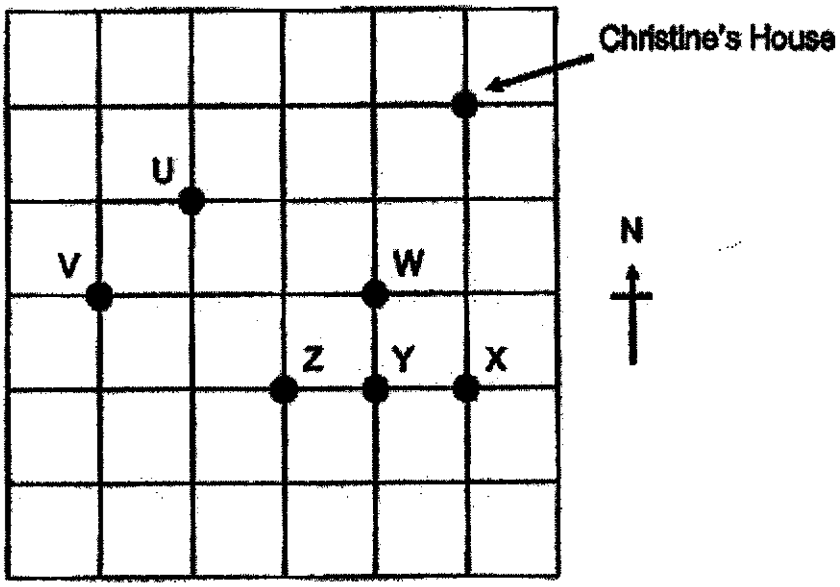
(1) $\frac{3}{5}$

(2) $\frac{5}{6}$

(3) $\frac{7}{9}$

(4) $\frac{9}{10}$

12 The square grid shows the positions of the buildings U, V, W, X, Y and Z.



Christine stands at a location south-west of her house and east of a building. When facing south-east from Christine's location, she sees a building. What is that building?

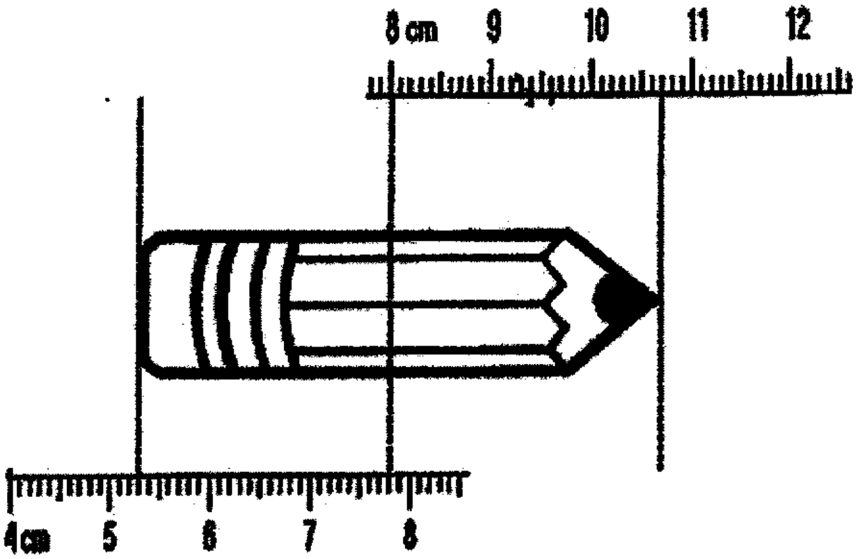
(1) Building W

(2) Building X

(3) Building Y

(4) Building Z

13 What is the length of the pencil shown below?


8 cm
9
10
11
12
4cm
5
6
7
8

(1) 5.2 cm

(2) 5.4 cm

(3) 5.6 cm

(4) 10.7 cm

14 Viv, Wendy and Xinyl each had some beads. They each used the same number of beads to make a necklace. Viv used $\frac{1}{3}$ of her beads, Wendy used $\frac{7}{8}$ of her beads and Xinyl used $\frac{3}{4}$ of her beads. What was the ratio of the number of beads Viv had at first to the number of beads Wendy had at first to the number of beads Xinyl had at first?

(1) 1 : 7 : 3

(2) 3 : 8 : 4

(3) 8 : 21 : 18

(4) 63 : 24 : 28

15 The first 7 numbers of a number pattern are given below.

4, 16, 8, 32, 16, 64, 32, ...
1st — 7th

What is the 13th number?

(1) 128

(2) 256

(3) 512

(4) 1024

NANYANG PRIMARY SCHOOL

PRELIMINARY EXAMINATION
2022

PRIMARY 6

MATHEMATICS
PAPER 1
(BOOKLET B)

Total Duration for Booklets A and B: 1 hour

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3. Answer all questions.
4. Write your answers in this booklet.
5. The use of calculators is **NOT** allowed.

Name: ______________________________ (   )

Class: Primary 6 (   )

Booklet B	/ 25

Please sign and return the examination paper the next day. Any queries should be raised at the same time when returning paper.

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)

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16 **Mr Ahmad had 2 bags of marbles. One of the bag contained 6 red marbles and 3 blue marbles. The other bag contained 2 red marbles and 4 yellow marbles. What fraction of the total marbles from both bags were red marbles?**

Ans: ____________________

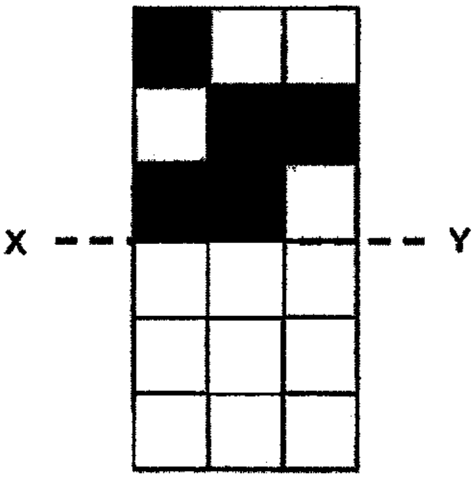
---

17 **Find the value of 3.707 ℓ + 1.373 ℓ**
Express the answer in litres and millilitres.

Ans: ________ ℓ ________ ml

---

18 There are 5 shaded squares in the figure. Shade 5 more squares to form a symmetric figure with XY as the line of symmetry.



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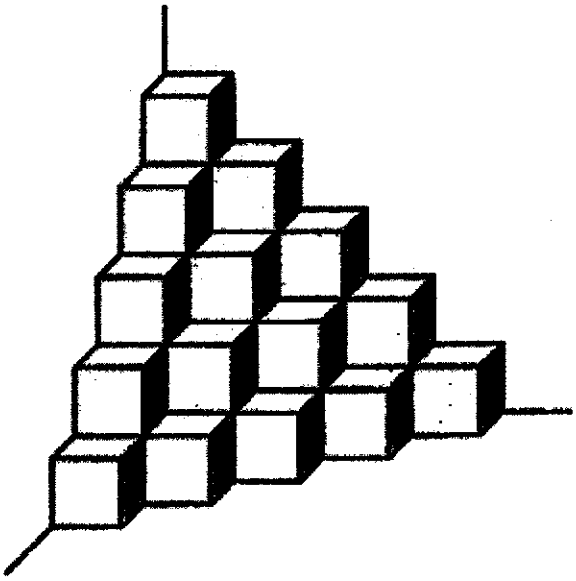
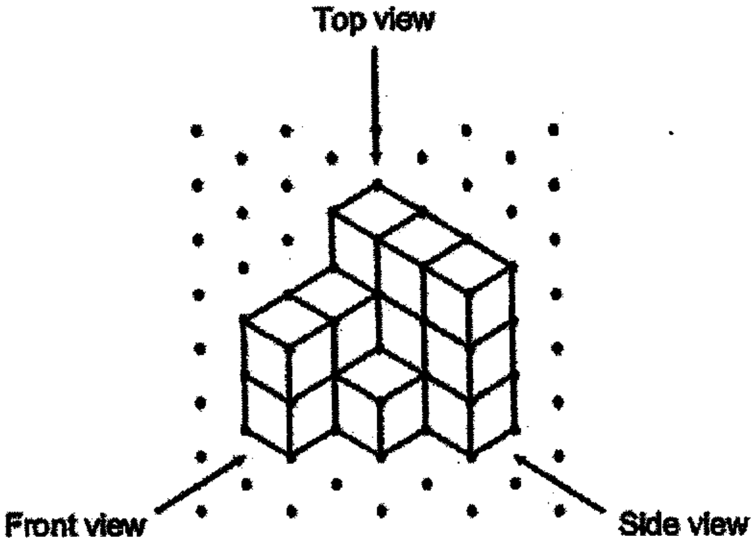
19 The solid below is made up of 1-cm cubes. What is the volume of the solid?



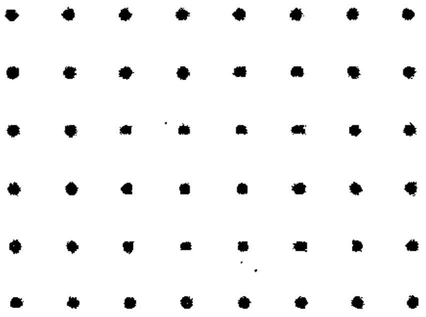
Ans: ________________ cm^3

20 Parminder stacked 14 unit cubes and glued them together to form the solid below.


Top view
Front view
Side view

Draw the side view of the solid on the grid below.

Side View



Questions 21 to 30 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. (20 marks)

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21 A faulty traffic light had its red light blinking every 2 seconds, its amber light blinking every 3 seconds and its green light blinking every 8 seconds. If all three lights blink now, how many seconds later will they all blink together again?

Ans: ____________________ s

22 Mr Liew paid $78.59 for a pair of shoes and $19.90 for a towel.

(a) How much did he spend altogether? Round the answer to the nearest dollar.

Ans: (a) $________________

(b) Find the cost of 30 such towels.

Ans: (b) $________________

---

23 A day camp lasted 8 h 20 min. The day camp started 1 h 45 min before the snack break. Snack break was at 11.30 a.m. What time did the day camp end? Give your answer in 24-hour clock.

Ans: ________________

24 In 2021, Maggie saved 20% of her monthly salary of $3000 each month. In 2022, Maggie received an increase in her monthly salary and she saved $180 more per month. What was the percentage increase in Maggie's monthly savings?

Ans: ____________________%

---

25 There were 1338 big buns and 7982 small buns in a factory. The buns were packed into bags. Each bag contained 1 big bun and 6 small buns. What was the greatest number of bags that could be packed?

Ans: ____________________

26 Mrs Chen sold $\frac{1}{3}$ of her apples on Monday. She sold $\frac{2}{3}$ of the remaining apples on Tuesday. Mrs Chen had 14 apples left after selling apples on Monday and Tuesday. How many apples did Mrs Chen have at first?

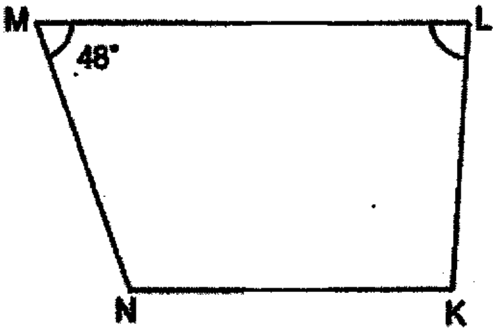
Ans: ____________________

---

27 Mary had a roll of ribbon with a total length of 1 m. She cut off $\frac{1}{5}$ m of the ribbon. The remaining length of the ribbon was cut into shorter pieces of length $\frac{1}{8}$ m each. At most, how many pieces of $\frac{1}{8}$-m long ribbon did Mary have in the end?

Ans: ____________________

28 In the figure below, KLMN is a trapezium and LM is parallel to KN. $\angle LMN = 48°$ and $\angle MNK$ is $\frac{3}{2}$ times of $\angle MLK$. Find $\angle MLK$.



Ans: ______________°

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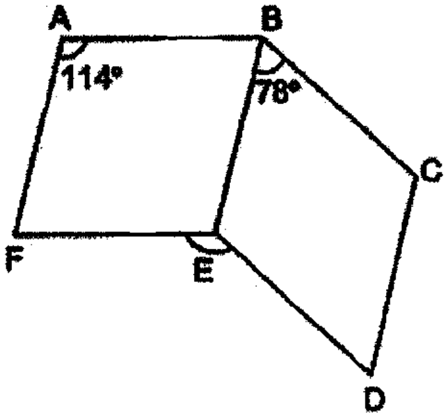
29 ABEF and BCDE are parallelograms. $\angle FAB = 114°$ and $\angle EBC = 78°$. Find $\angle DEF$.



Ans: ______________°

30 Pam Bakery uses m kg of sugar each month. Pam Bakery uses 30 kg more sugar than Sweet Bakery each month. If m = 100, how many kilograms of sugar do Pam Bakery and Sweet Bakery use in total for one year?

Ans: ____________________ kg

End of Paper

NANYANG PRIMARY SCHOOL

PRELIMINARY EXAMINATION
2022

PRIMARY 6

MATHEMATICS
PAPER 2

Duration: 1 hour 30 minutes

INSTRUCTIONS TO PUPILS

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write your answers in this booklet.
5. The use of an approved calculator is allowed.

Name: ____________________________ (   )

Class: Primary 6 (   )

Parent's Signature: ________________

Booklet A	/ 20
Booklet B	/ 25
Paper 2	/ 55
Total	/ 100

Please sign and return the examination paper the next day. Any queries should be raised at the same time when returning paper.

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. **(10 marks)**

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1 The original price of a book was $k. David bought 15 such books. After he was given a discount of $10, he paid a total of $110. What was the original price of one such book?

Ans: $________________

---

2 The table below shows the charges for renting a bicycle.

	Days	Time	Charge
	Mon to Fri	7 a.m. to 5 p.m.	$4 per hour
		5 p.m. to 9 p.m.	$8 per hour
	Sat and Sun	7 a.m. to 9 p.m.	$12 per hour

On Friday, Mr Wu rented a bicycle and returned it at 6 p.m. He paid a total of $24. For how many hours did he rent the bicycle?

Ans: ________________ h

---

3 Ji Min saved some money in April. She saved $2.50 per day for 20 days. She then saved $3.10 per day for the rest of the month. What was the average amount of money she saved per day in April? (There are 30 days in April.)

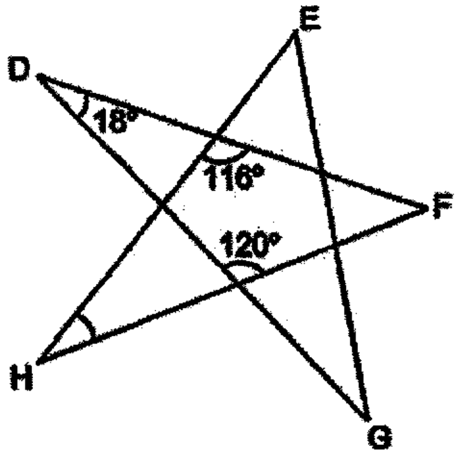
Ans: $________________

---

4 Dana bought an oven from Shop A at 15% discount during a sale. The price of the oven was $800 before discount at Shop A. Halley bought an identical oven from Shop B at 20% discount and paid the same amount as Dana. What was the price of the oven before discount at Shop B?

Ans: $________________

5 **The figure is formed by 5 straight lines DF, EH, EG, FH and DG. Find ∠EHF.**


E
D
18°
116°
F
120°
H
G

Ans: ______________ °

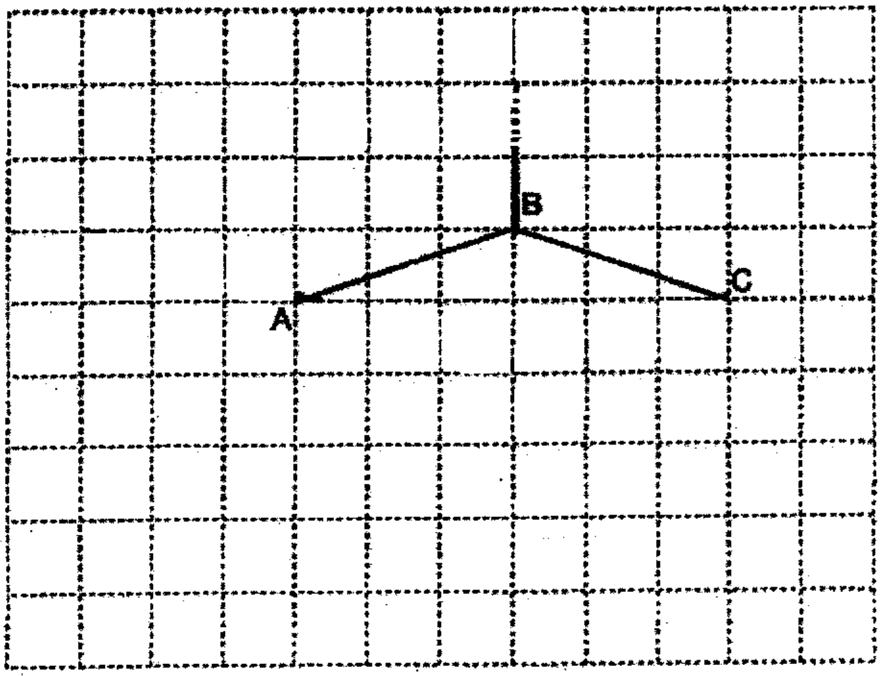
For questions 6 to 17, show your working clearly and write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part-question. (45 marks)

---

6 In the square grid below, AB and BC are straight lines.

(a) AB and BC form two sides of a rhombus ABCD. Complete the drawing of the rhombus ABCD. [1]

(b) AB also forms one side of a trapezium ABEF. AB is parallel to EF. The length of EF is twice the length of AB. DAF forms a straight line and AD = AF. Complete the drawing of trapezium ABEF such that it does not overlap with the rhombus. [2]



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7 Peter had $18.20 less than Jane at first. After Jane gave some of her money to Peter, he had $29.20 more than her. How much money did Jane give to Peter?

Ans: ____________________ [3]

8 Kira had a roll of blue paper and a roll of red paper. The length of the roll of blue paper is $\frac{1}{2}$ the length of the roll of red paper. She cut the roll of blue paper into equal parts of length 9 cm and on each part she drew 3 star shapes. After that, she cut the roll of red paper into equal parts of length 7 cm and on each part she drew 5 heart shapes. What fraction of the shapes Kira drew were star shapes?

Ans: ____________________ [3]

---

9 Four towns A, B, C and D collected plastic bottles to be recycled. Town A and B collected an average of 324 plastic bottles. Town B, C and D collected an average of 344 plastic bottles. The total number of plastic bottles collected by all 4 towns was 6 times the number that town B collected. How many plastic bottles did town B collect?

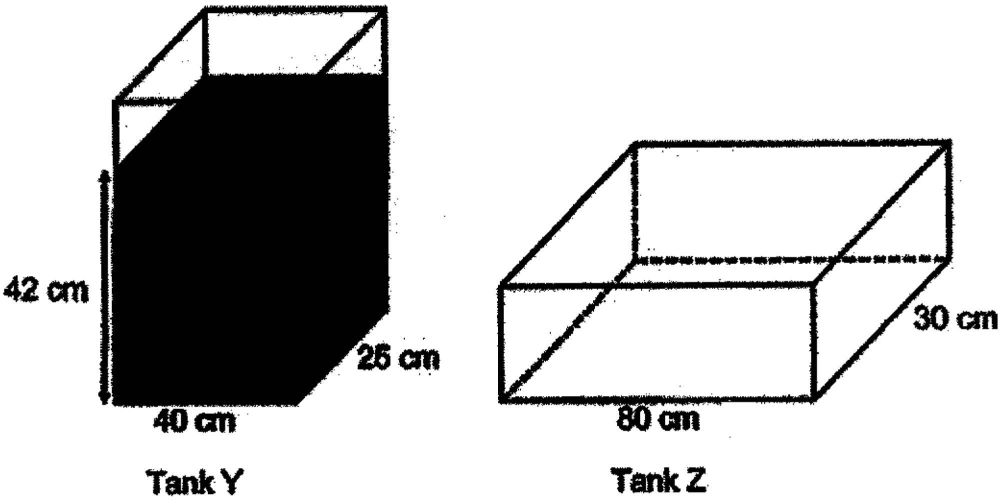
Ans: ____________________ [3]

10 Mr Toh left Town B and drove to Town C at 11 a.m. at a constant speed of 60 km/h. Mr Lee left Town A at 12 noon and drove to Town C at a constant speed of 80 km/h. Town A and Town B were 15 km apart. After travelling from Town A to Town B, Mr Lee then travelled to Town C along the same route as Mr Toh. At what time did Mr Lee catch up with Mr Toh?

Town A
Town B
Town C

Ans: ____________________ [3]

11 Tank Y and Tank Z are two rectangular tanks. At first, Tank Y contained some water to a height of 42 cm and Tank Z was empty.


42 cm
25 cm
40 cm
Tank Y
30 cm
80 cm
Tank Z

(a) What was the volume of the water in Tank Y at first?

Ans: (a) ________________ [1]

(b) Kanthea poured some water from Tank Y into Tank Z. After that, Tank Y had $\frac{2}{5}$ as much water as Tank Z. Find the height of the water level in Tank Z.

Ans: (b) ________________ [3]

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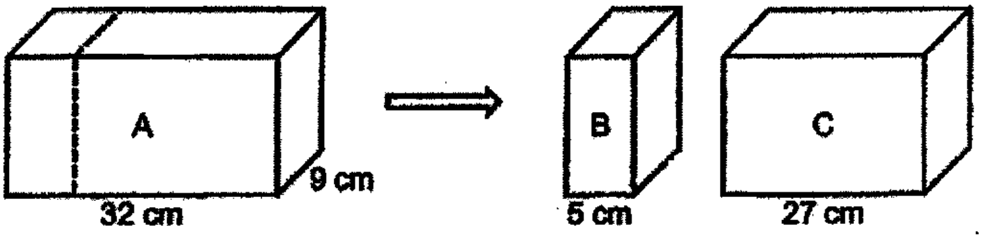
12 A rectangular block A was cut along the dotted line into two smaller rectangular blocks of equal height, B and C, as shown below. The volume of block B was 4752 cm³ less than that of block C.



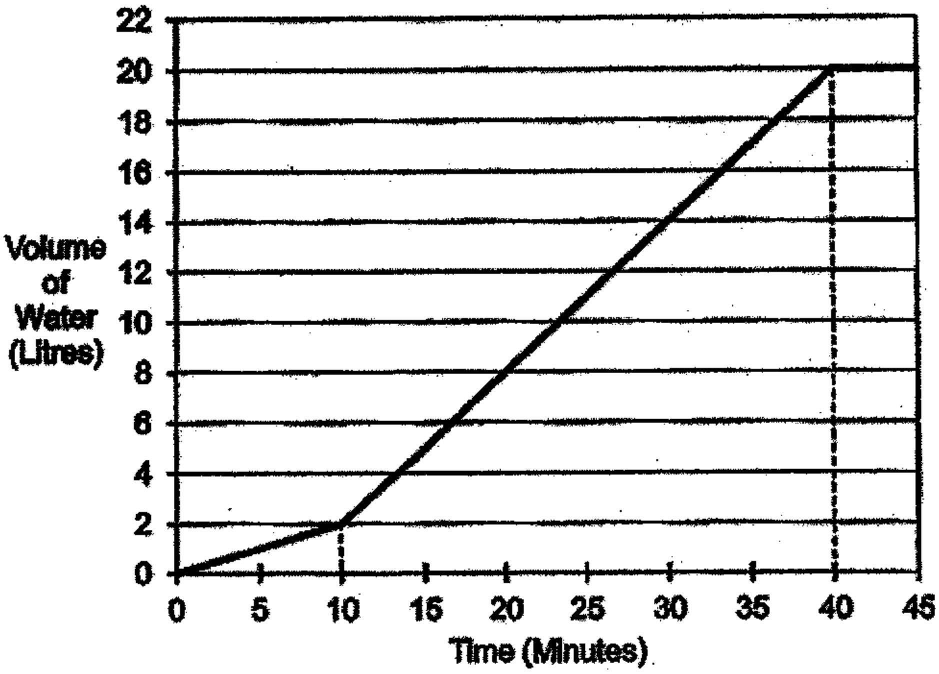
(a) What was the height of each block?

Ans: (a) ______________ [2]

(b) Matthias packed 12 of block C such that they fit exactly into a box with a square base. The box had the same height as block C. At most, how many of block B can be packed into such a box?

Ans: (b) ______________ [2]

13 Ji Eun filled a tank with water using two taps, Tap A and Tap B. She turned on Tap A first. After 10 minutes, she turned on Tap B. Both taps were turned off at the same time when the tank was completely filled. The graph below shows the amount of water in the tank over 45 minutes.



(a) What was the capacity of the tank?

Ans: (a) ______________ [1]

(b) How many litres of water flowed from Tap B per minute?

Ans: (b) ______________ [3]

14 Mariam had some gold, some silver and some copper tokens for a carnival. The ratio of the number of gold tokens to the total number of silver and copper tokens was 10 : 9. The ratio of the number of silver tokens to the number of copper tokens was 3 : 1. She exchanged 12 gold tokens for a stuffed toy and some silver tokens for a jar of marbles. In the end, the ratio of the number of gold tokens to the number of copper tokens became 4 : 1 and the ratio of the number of silver tokens to the number of copper tokens became 4 : 3.

(a) What was the ratio of the number of gold tokens to the number of silver tokens to the number of copper tokens Mariam had at first?

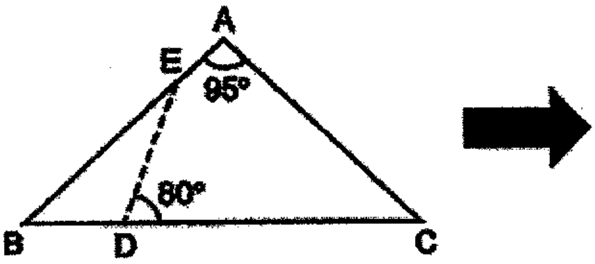
Ans: (a) ______________ [1]

(b) How many silver tokens did Mariam exchanged for the jar of marbles?

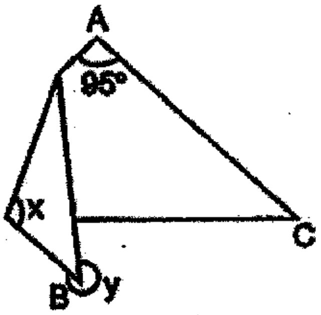
Ans: (b) ______________ [3]

---

15 ABC is a triangular piece of paper with AB = AC. ∠BAC = 95°. AEB and BDC are straight lines. The paper is then folded along the line DE as shown below.



Before folding



After folding

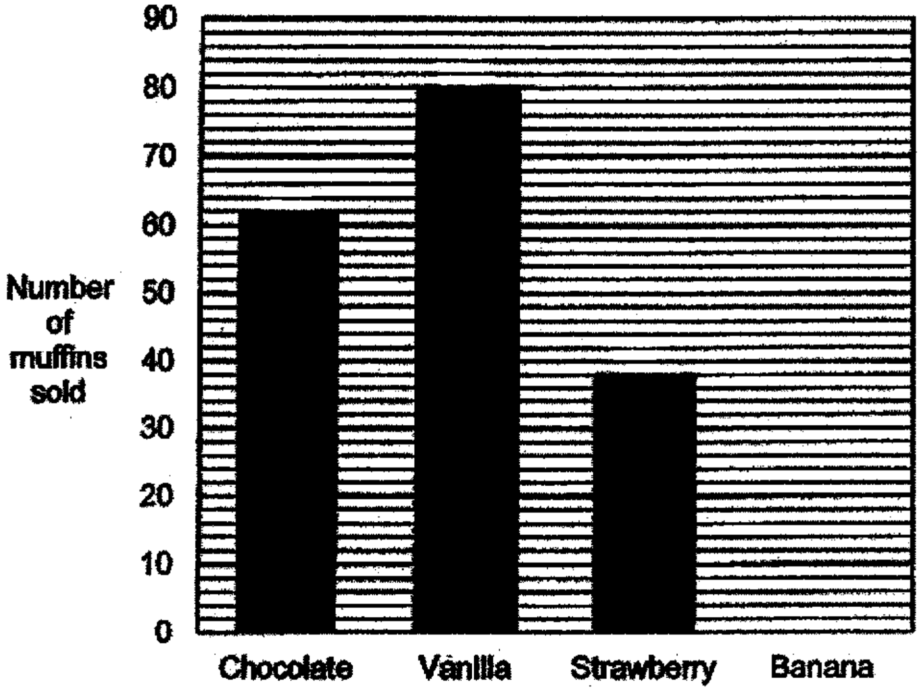
(a) Find ∠x.

Ans: (a) ________________ [2]

(b) Find ∠y.

Ans: (b) ________________ [2]

16 A shop sells four types of muffin. The bar graph shows the number of each type of muffin sold by the shop. The bar for the number of banana muffins sold has not been drawn. The number of banana muffins sold was $\frac{3}{5}$ the number of vanilla muffins sold.



(a) How many banana muffins were sold?

Ans: (a) ________________ [1]

(b) The table below shows the prices of the muffins.

Type of muffin	Price per muffin
Chocolate	$0.85
Vanilla	$0.70
Strawberry	$1.35
Banana	$1.20

From the sales of which type of muffin did the shop collect the most money? What was the amount of money?

Ans: (b) Muffin: ____________

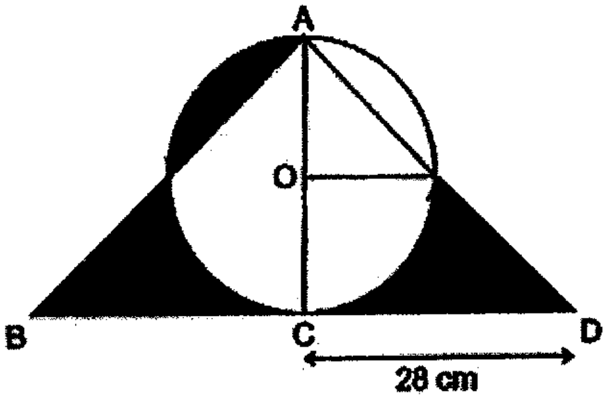
Amount: ____________ [2]

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

Statement	True	False	Not possible to tell
The number of chocolate muffins sold was 62.			
The ratio of the number of strawberry muffins sold to the number of strawberry muffins left unsold was 3 : 2.			
The shop sold 46 boxes of 5 muffins.			

[2]

17 The figure below is made up of a semicircle, 2 identical quarter circles and 2 identical right-angled isosceles triangles, ACB and ACD. CA = CB = CD. O is the centre of the circle. AOC and BCD are straight lines. Find the total area of the shaded parts.
(Take $\pi = 3.14$)



Ans: ____________________ [5]

End of Paper

NANYANG PRIMARY SCHOOL

PRELIMINARY EXAMINATION
2022

PRIMARY 6

MATHEMATICS
PAPER 1
(BOOKLET A)

Total Duration for Booklets A and B: 1 hour

Additional materials: Optical Answer Sheet (OAS)

INSTRUCTIONS TO PUPILS

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3. Answer all questions.
4. Shade your answers in the Optical Answer Sheet (OAS) provided.
5. The use of calculators is NOT allowed.

Name: ______________________ (   )

Class: Primary 6 (   )

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) and shade your answer on the Optical Answer Sheet. (20 marks)

1 Round 748 350 to the nearest hundred.

(1) 748 000
(2) 748 400
(3) 748 300
(4) 749 000

748 350 ≈ 748 400 (ans)

(2)

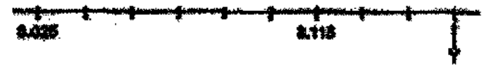
2 10 hundredths and 75 thousandths is ________

(1) 0.085
(2) 0.175
(3) 0.780
(4) 0.850

$\frac{10}{100} + \frac{75}{1000}$
$= 0.10 + 0.075$
$= 0.175$ (ans)

(2)

3 In the number line below, what is the value of Y as indicated by the arrow?

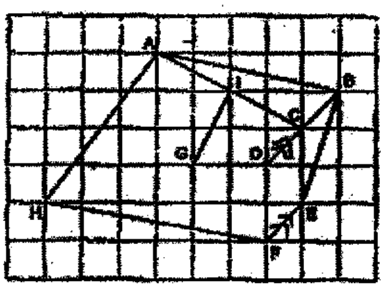


(1) 8.130
(2) 8.145
(3) 8.160
(4) 8.175

$\frac{8.115 - 8.025}{6} = \frac{0.09}{6}$
$= 0.015$
$8.115 + (0.015 \times 3)$
$= 8.115 + 0.045 = 8.160$ (ans)

(3)

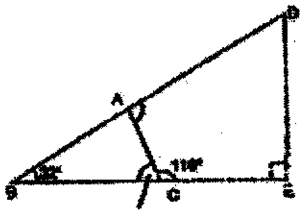
4 Which pair of lines in the square grid are parallel?



(1) AH and BE
(2) GI and AC
(3) AB and HF
(4) BD and EF

(4)

5 BCE and DAB are straight lines. Find ∠DAC.

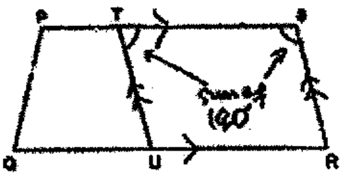


(1) 148°
(2) 94°
(3) 86°
(4) 62°

$180° - 118°$
$= 62°$
$180° - (62° + 32°)$
$= 180° - 94°$
$= 86°$
$180° - 86° = 94°$

(2)

6 PQRS is a trapezium and RSTU is a parallelogram.

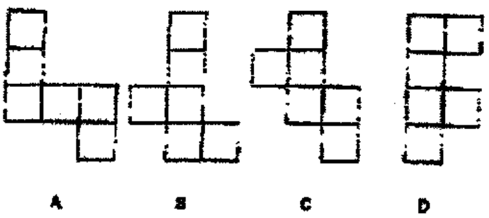


Which of the following pair of angles gives a sum of 180°?

(1) ∠QPT and ∠PTU
(2) ∠TSR and ∠UTS
(3) ∠TUR and ∠TSR
(4) ∠PQU and ∠URS

(2)

7 Which two of the following are nets of a cube?



(1) A and B

(2) A and C

(3) B and C

(4) C and D

(3)

8 Hailing had $z. Ravi had twice as much money as Hailing. Jas had $5 more than Ravi. If Jas had $10, how much money did Hailing have?

HL → $z
R → 2 × $z = $2z
J → $2z + $5

(1) $30

(2) $7.50

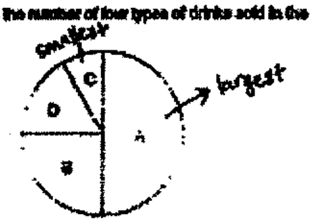
(3) $5

(4) $2.50

2z + 5 = 10
2z = 10 − 5
= 5
z = 5 ÷ 2
= 2.5

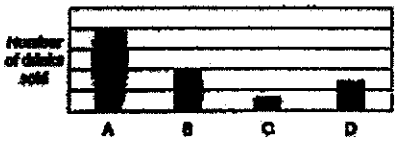
(4)

9 The pie chart shows the number of four types of drinks sold in the school canteen.

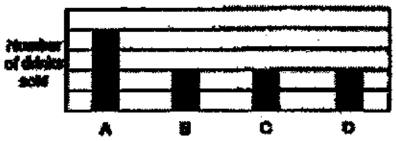


Which bar graph best represents the information in the pie chart?

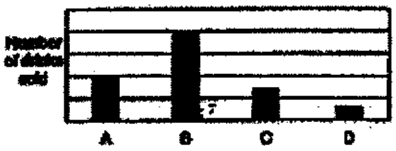
(1)



(2)

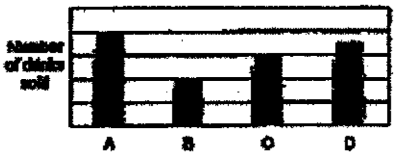


(3)

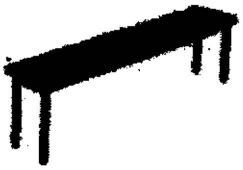


(1)

(4)



10 Which of the following is likely to be the length of a bench in the school canteen?



(1) 1.8 cm

(2) 18 cm

(3) 1.8 m

(4) 18 m

(3)

11 Which of the following fractions is closest to $\frac{4}{5}$?

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

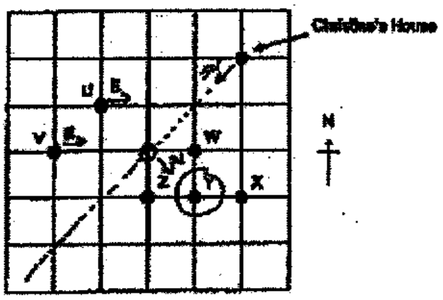
(2) $\frac{5}{6}$ $\frac{5^{\times 5}}{6_{\times 5}}-\frac{4^{\times 6}}{5_{\times 6}}=\frac{25}{30}-\frac{24}{30}=\frac{1}{30}$

(3) $\frac{7}{9}$ $\frac{4^{\times 9}}{5_{\times 9}}-\frac{7^{\times 5}}{9_{\times 5}}=\frac{36}{45}-\frac{35}{45}=\frac{1}{45}$ → smallest, so closest.

(4) $\frac{9}{10}$ $\frac{9}{10}-\frac{4^{\times 2}}{5_{\times 2}}=\frac{9}{10}-\frac{8}{10}=\frac{1}{10}$

(3)

12 The square grid shows the positions of the buildings U, V, W, X, Y and Z.



Christine stands at a location south-west of her house and east of a building. When facing south-east from Christine's location, she sees a building. What is that building?

(1) Building W

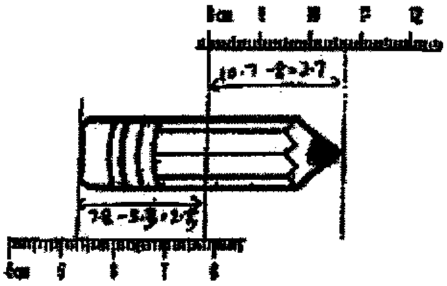
(2) Building X

(3) Building Y

(4) Building Z

(3)

13 What is the length of the pencil shown below?



2.5 + 2.7 = 5.2

(1) 5.2 cm

(2) 5.4 cm

(3) 5.8 cm

(4) 10.7 cm

(1)

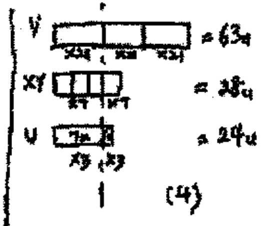
14 Viv, Wendy and Xinyi each had some beads. They each used the same number of beads to make a necklace. Viv used $\frac{1}{3}$ of her beads. Wendy used $\frac{7}{8}$ of her beads and Xinyi used $\frac{3}{4}$ of her beads. What was the ratio of the number of beads Viv had at first to the number of beads Wendy had at first to the number of beads Xinyi had at first?

(1) 1 : 7 : 3

(2) 3 : 8 : 4

(3) 6 : 21 : 18

(4) 63 : 24 : 28
V W XY



15 The first 7 numbers of a number pattern are given below.

4, 16, 8, 32, 16, 64, 32, ...
1st 7th
×2 ×2

What is the 13th number?

(1) 128

(2) 256

(3) 512

(4) 1024

13th → odd number.
use pattern
4 ..., 8 ..., 16, ...
1st 3rd 5th
13th → 4 × 2 × 2 × 2 × 2 × 2 × 2
= 4 × 64
= 256 (2)

NANYANG PRIMARY SCHOOL

PRELIMINARY EXAMINATION 2022

PRIMARY 6

MATHEMATICS
PAPER 1
(BOOKLET B)

Total Duration for Booklets A and B: 1 hour

INSTRUCTIONS TO PUPILS

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write your answers in this booklet.
5. The use of calculators is NOT allowed.

Name: ____________________ ( )

Class: Primary 6 ( )

Booklet B	/25

Please sign and return the examination paper the next day. Any queries should be raised at the same time when returning paper.

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)

16 Mr Ahmad had 2 bags of marbles. One of the bag contained 6 red marbles and 3 blue marbles. The other bag contained 2 red marbles and 4 yellow marbles. What fraction of the total marbles from both bags were red marbles?

$$\frac{\text{Red}}{\text{total}} = \frac{6+2}{6+3+2+4} = \frac{8}{15}$$
(ans)

Ans: $\frac{8}{15}$

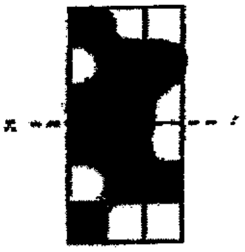
17 Find the value of 3.707 ℓ + 1.373 ℓ.
Express the answer in litres and millilitres.

3.707 + 1.573 = 5.080

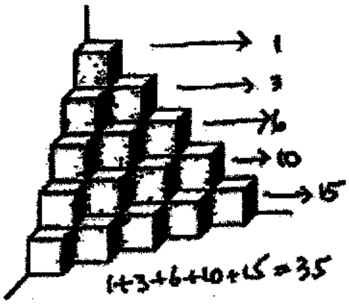
5.080 ℓ = 5ℓ 80mℓ (ans)

Ans: 5 ℓ 80 ml

18 There are 5 shaded squares in the figure. Shade 5 more squares to form a symmetric figure with XY as the line of symmetry.



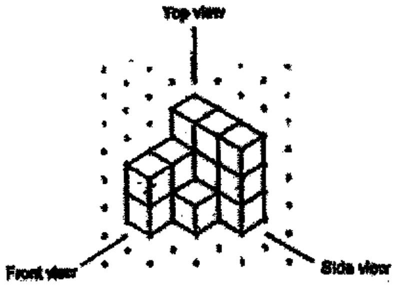
19 The solid below is made up of 1-cm cubes. What is the volume of the solid?



1+3+6+10+15 = 35

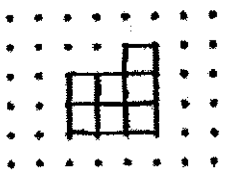
Ans: 35 cm³

20 Parminder stacked 14 unit cubes and glued them together to form the solid below.



Draw the side view of the solid on the grid below.

Side View



Questions 21 to 30 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. (20 marks)

21 A faulty traffic light had its red light blinking every 2 seconds, its amber light blinking every 3 seconds and its green light blinking every 8 seconds. If all three lights blink now, how many seconds later will they all blink together again?

2 → 2, 4, 6, 8, 10 ...... 20, 22, ㉔
3 → 3, 6, 9, 12 ..... 18, 21, ㉔
8 → 8, 16, ㉔
(ans)

Ans: 24 s

22 Mr Liew paid $78.59 for a pair of shoes and $19.90 for a towel.

(a) How much did he spend altogether? Round the answer to the nearest dollar.

$78.59 + $19.90 = $98.49
≈ $98 (ans)

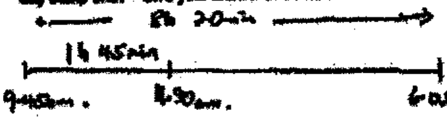
Ans: (a) $ 98

(b) Find the cost of 30 such towels.

$19.90 × 30 = $19.90 × 3 × 10
= $59.70 × 10
= $597 (ans)

Ans: (b) $ 597

23 A day camp lasted 8 h 20 min. The day camp started 1 h 45 min before the snack break. Snack break was at 11.30 a.m. What time did the day camp end? Give your answer in 24-hour clock.



(18 05)
(ans)

Ans: 18 05

24 In 2021, Maggie saved 20% of her monthly salary of $3000 each month. In 2022, Maggie received an increase in her monthly salary and she saved $180 more per month. What was the percentage increase in Maggie's monthly savings?

$\frac{20}{100} \times 3000 = 600$

$\frac{180}{600} \times 100\% = 30\%$

Ans: 30 %

25 There were 1338 big buns and 7982 small buns in a factory. The buns were packed into bags. Each bag contained 1 big bun and 6 small buns. What was the greatest number of bags that could be packed?

$7982 \div 6 = 1330R2$

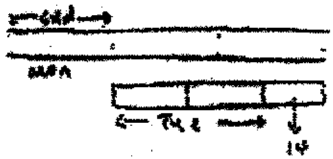
1330 less than 1338

↓

(ans)

Ans: 1330

26 Mrs Chan sold $\frac{1}{3}$ of her apples on Monday. She sold $\frac{2}{3}$ of the remaining apples on Tuesday. Mrs Chan had 14 apples left after selling apples on Monday and Tuesday. How many apples did Mrs Chan have at first?



$14 \times 3 = 42$

$42 \div 2 = 21$

$21 \times 3 = 63$ (ans)

Ans: 63

27 Mary had a roll of ribbon with a total length of 1 m. She cut off $\frac{1}{5}$ m of the ribbon. The remaining length of the ribbon was cut into shorter pieces of length $\frac{1}{8}$ m each. At most, how many pieces of $\frac{1}{8}$ m long ribbon did Mary have in the end?

$1m - \frac{1}{5}m = \frac{4}{5}m$

$\frac{4}{5} \div \frac{1}{8} = \frac{4}{5} \times \frac{8}{1}$

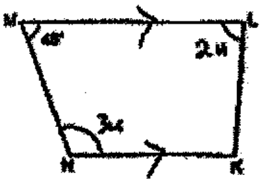
$= \frac{32}{5}$

$= 6\frac{2}{5}$

≈ 6 (ans)

Ans: 6

28 In the figure below, KLMN is a trapezium and LM is parallel to NK. ∠LMN = 48° and ∠MNK is $\frac{3}{2}$ times of ∠MLK. Find ∠MLK.



$3u + 48 = 180$

$3u = 180 - 48$

$= 132$

$1u = 132 \div 3$

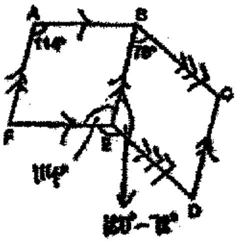
$= 44$

$2u = 44 \times 2$

$= 88$ (ans)

Ans: 88 °

29 ABEF and BCDE are parallelograms. ∠FAB = 114° and ∠EDC = 78°. Find ∠DEF.



114°

180° − 78°

= 102°

360° − 102° − 114° = 144° (ans)

Ans: 144 °

30 Pam Bakery uses m kg of sugar each month. Pam Bakery uses 30 kg more sugar than Sweet Bakery each month. If m = 100, how many kilograms of sugar do Pam Bakery and Sweet Bakery use in total for one year?

Pam → m kg

Sweet → (m − 30) kg

$m + m - 30 = 2m - 30$

$= 2 \times 100 - 30$

$= 200 - 30$

$= 170$

$170 \times 12 = 2040$ (ans)

Ans: 2040 kg

End of Paper

NANYANG PRIMARY SCHOOL

PRELIMINARY EXAMINATION
2022

PRIMARY 6

MATHEMATICS
PAPER 2

Duration: 1 hour 30 minutes

INSTRUCTIONS TO PUPILS

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write your answers in this booklet.
5. The use of an approved calculator is allowed.

Name: ______________________ (   )

Class: Primary 6 (   )

Parent's Signature: ________________

Booklet A	/ 20
Booklet B	/ 25
Paper 2	/ 55
Total	/ 100

Please sign and return the examination paper the next day. Any queries should be raised at the same time when returning paper.

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. (10 marks)

1 The original price of a book was $k. David bought 15 such books. After he was given a discount of $10, he paid a total of $110. What was the original price of one such book?

15k - 10 = 110
15k = 110+10
= 120
k = 120 ÷ 15
= 8

Ans: $ 8

2 The table below shows the charges for renting a bicycle.

	Days	Time	Charge
	Mon to Fri	7 a.m. to 5 p.m.	$4 per hour
		5 p.m. to 9 p.m.	$8 per hour
	Sat and Sun	7 a.m. to 9 p.m.	$12 per hour

On Friday, Mr Wu rented a bicycle and returned it at 6 p.m. He paid a total of $24. For how many hours did he rent the bicycle?

$24 - $8 = $16 ($8 → 1h between 5pm and 6pm)
$16 ÷ $4 = 4 (4 h before 5pm.)
1+4 = 5

Ans: 5 h

---

3 Ji Min saved some money in April. She saved $2.50 per day for 20 days. She then saved $3.10 per day for the rest of the month. What was the average amount of money she saved per day in April? (There are 30 days in April.)

20 × 2.50 = 50
10 × 3.10 = 31
50 + 31 = 81
81 ÷ 30 = 2.70

Ans: $ 2.70

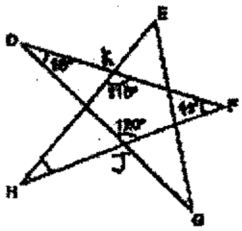
4 Dana bought an oven from Shop A at 15% discount during a sale. The price of the oven was $800 before discount at Shop A. Hailey bought an identical oven from Shop B at 20% discount and paid the same amount as Dana. What was the price of the oven before discount at Shop B?

Dana paid → 85% × $800
$= \frac{85}{100} \times \$800$
= $680
After a discount of 20%,
Haley paid 80% for $680
Price at shop B → $\frac{100}{80} \times \$680 = \$850$

Ans: $ 850

---

5 The figure is formed by 5 straight lines DF, EH, EG, FH and DG. Find ∠EHF.



In △DFJ, ∠DFH = 180° - 120° - 18°
= 42°

In △KFH, ∠EHF = 180° - 116° - 42°
= 22°

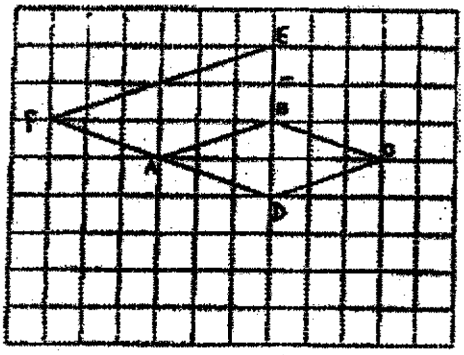
Ans: 22°

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)

6 In the square grid below, AB and BC are straight lines.

(a) AB and BC form two sides of a rhombus ABCD. Complete the drawing of the rhombus ABCD. [1]

(b) AB also forms one side of a trapezium ABEF. AB is parallel to EF. The length of EF is twice the length of AB. DAF forms a straight line and AD = AF. Complete the drawing of trapezium ABEF such that it does not overlap with the rhombus. [2]



7 Peter had $18.30 less than Jane at first. After Jane gave some of her money to Peter, he had $29.10 more than her. How much money did Jane give to Peter?

$18.30 + $29.10 = $47.40

$47.40 ÷ 2 = $23.70

Ans: $23.70 [3]

8 Kira had a roll of blue paper and a roll of red paper. The length of the roll of blue paper is $\frac{1}{2}$ the length of the roll of red paper. She cut the roll of blue paper into equal parts of length 9 cm and on each part she drew 3 star shapes. After that, she cut the roll of red paper into equal parts of length 7 cm and on each part she drew 5 heart shapes. What fraction of the shapes Kira drew were star shapes?

Blue : Red

Length 1 : 2

9×7 : 2×(9×7)

63 : 126

÷9 ÷7

Parts 7 : 18

×3 ×5

Shapes 21 : 90

$\frac{21}{21+90} = \frac{21}{111}$

Ans: $\frac{21}{111}$ [3]

9 Four towns A, B, C and D collected plastic bottles to be recycled. Towns A and B collected an average of 324 plastic bottles. Towns B, C and D collected an average of 344 plastic bottles. The total number of plastic bottles collected by all 4 towns was 6 times the number that town B collected. How many plastic bottles did town B collect?

A + B = 2×324 = 648

B + C + D = 3×344 = 1032

A + B + B + C + D = 648 + 1032

= 1680

A + B + C + D = 6B

A + B + C + D + B

= 6B + B

= 7B

= 1680

B = 1680 ÷ 7

= 240

Ans: 240 [3]

10 Mr Toh left Town B and drove to Town C at 11 a.m. at a constant speed of 60 km/h. Mr Lee left Town A at 12 noon and drove to Town C at a constant speed of 80 km/h. Town A and Town B were 15 km apart. After travelling from Town A to Town B, Mr Lee then travelled to Town C along the same route as Mr Toh. At what time did Mr Lee catch up with Mr Toh?

Town A
Town B
Town C

When Mr Lee left Town A at 12 noon, Mr Toh would be a distance away of :-

15 km + (Speed × Time)

= 15 km + (60 km/h × 1h)

= 15 km + 60 km

= 75 km

Difference in their speed

80 km/h − 60 km/h

= 20 km/h

Time need for Mr Lee to catch up :-

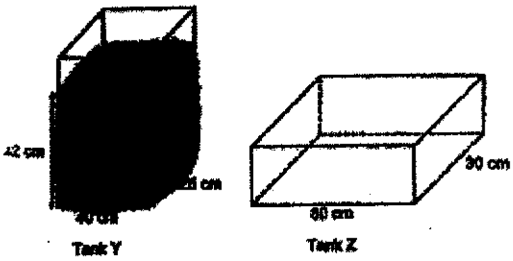
75 km ÷ 20 km/h = $3\frac{3}{4}$h

$3\frac{3}{4}$h after 12 noon is 3.45 pm.

Ans: 3.45 p.m. [3]

---

11 Tank Y and Tank Z are two rectangular tanks. At first, Tank Y contained some water to a height of 42 cm and Tank Z was empty.



(a) What was the volume of the water in Tank Y at first?

40×25×42 = 42 000

Ans: (a) 42 000 cm^3 [1]

(b) [illegible] poured some water from Tank Y into Tank Z. After that, Tank Y had $\frac{2}{5}$ as much water as Tank Z. Find the height of the water level in Tank Z.

Tank Y : Tank Z : Total

2 : 5 : 7

7u → 42 000

1u → 42 000 ÷ 7

= 6000

Tank Z → 5u = 5×6000

= 30 000

Height = Volume ÷ Base Area

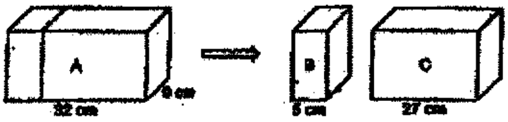
= 30000 ÷ (80×25)

= 12.5

Ans: (b) 12.5cm [3]

---

12 A rectangular block A was cut along the dotted line into two smaller rectangular blocks of equal height, B and C, as shown below. The volume of block B was 4752 cm^3 less than that of block C.



(a) What was the height of each block?

27−5 = 22

4752 ÷ (22×9) = 4752 ÷ 198

= 24 cm (ans)

Ans: (a) 24 cm [2]

(b) [illegible] packed 12 of block C such that they fit exactly into a box with a square base. The box had the same height as block C. At most, how many of block B can be packed into such a box?

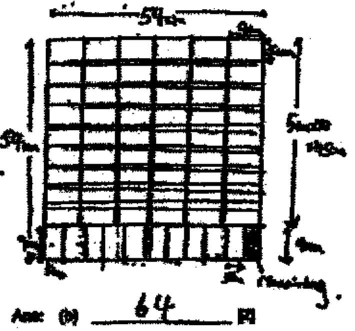
(27×9)×12 = 2916

$\sqrt{2916}$ = 54

9×6 = 54

10×1 = 10

54 + 10 = 64 (ans)



Ans: (b) 64 [3]

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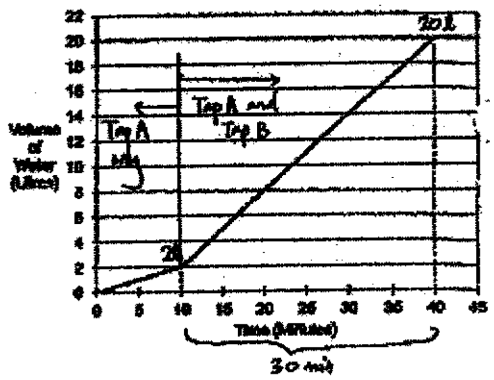
13 Ji Eun filled a tank with water using two taps, Tap A and Tap B. She turned on Tap A first. After 10 minutes, she turned on Tap B. Both taps were turned off at the same time when the tank was completely filled. The graph below shows the amount of water in the tank over 45 minutes.



(a) What was the capacity of the tank?

Tank filled from 40th minute.

Ans: (a) 20l [1]

(b) How many litres of water flowed from Tap B per minute?

Tap A → 2l in 10 min

→ 6l in 30 min

Tap A and Tap B → 18l in 30 min

Tap B only in 30 min → 18l − 6l = 12l

Tap B → $\frac{12l}{30 min}$ = 0.4l/min

Ans: (b) 0.4l [3]

14 Mariam had some gold, some silver and some copper tokens for a carnival. The ratio of the number of gold tokens to the total number of silver and copper tokens was 10 : 9. The ratio of the number of silver tokens to the number of copper tokens was 3 : 1. She exchanged 12 gold tokens for a stuffed toy and some silver tokens for a jar of marbles. In the end, the ratio of the number of gold tokens to the number of copper tokens became 4 : 1 and the ratio of the number of silver tokens to the number of copper tokens became 4 : 3.

(a) What was the ratio of the number of gold tokens to the number of silver tokens to the number of copper tokens Mariam had at first?

Before
G : S+C : S : C : Total
10 : 9 3 : 1 : 4
40 : 36 27 : 9 : 36

G : S : C
40 : 27 : 9

Ans: (a) 40:27:9 [1]

(b) How many silver tokens did Mariam exchange for the jar of marbles?

After
G : C S : C
4 : 1 4 : 3

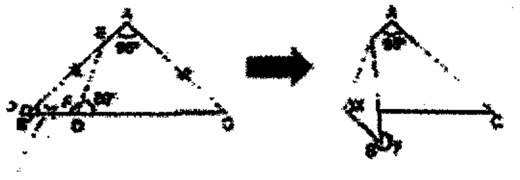
Since no change for copper.
36 : 9 12 : 9
G : S : C
36 : 12 : 9

40u−36u=4u
4u → 12
u → 12÷4=3

Ans: (b) 45 [2]

27u − 12u = 15u
15u → 15×3 = 45

15 ABC is a triangular piece of paper with AB = AC. ∠BAC = 95°. AEB and BDC are straight lines. The paper is then folded along the line DE as shown below.



Before folding After folding

(a) Find ∠x.

This is ∠x
∠x = 180° − 80°
= 100°

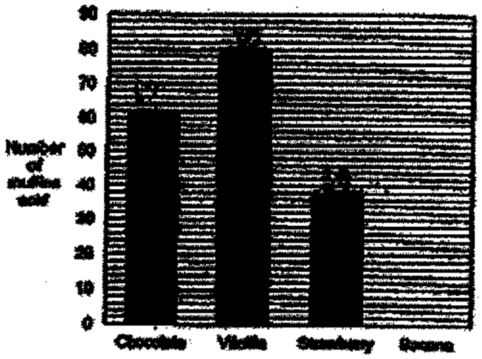
Ans: (a) 100° [1]

(b) Find ∠y.

∠ABC = (180° − 95°) ÷ 2
= 42.5°
∠y = 360° − 42.5°
= 317.5°

Ans: (b) 317.5° [2]

16 A shop sells four types of muffin. The bar graph shows the number of each type of muffin sold by the shop. The bar for the number of banana muffins sold has not been drawn. The number of banana muffins sold was $\frac{3}{5}$ the number of vanilla muffins sold.



(a) How many banana muffins were sold?

$\frac{3}{5} \times 80 = 48$

Ans: (a) 48 [1]

(b) The table below shows the prices of the muffins.

Type of muffin	Price per muffin
Chocolate	$0.85
Vanilla	$0.70
Strawberry	$1.35
Banana	$1.20

From the sales of which type of muffin did the shop collect the most money? What was the amount of money?

Chocolate → 62 × $0.85 = $52.70
Vanilla → 80 × $0.70 = $56
Strawberry → 38 × $1.35 = $51.30
Banana → 48 × $1.20 = $57.60 ✓

Ans: (b) Muffin: Banana
Amount: $57.60 [2]

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

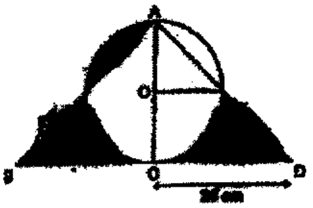
Statement	True	False	Not possible to tell
The number of chocolate muffins sold was 62.	✓		
The ratio of the number of strawberry muffins sold to the number of strawberry muffins left unsold was 3 : 2.		✓	
The shop sold 46 boxes of 5 muffins.		✓	

38 strawberry muffins sold. 38 is not divisible by 3.

46×5 = 230 [2]

But total muffins sold were 62+80+38+48 = 228.

17 The figure below is made up of a semicircle, 2 identical quarter circles and 2 identical right-angled isosceles triangles, ACB and ACD. OA = OB = OD. O is the centre of the circle. AOC and BOD are straight lines. Find the total area of the shaded parts.
(Take π = 3.14)



Area of Quarter Circle → $\frac{1}{4} \times 3.14 \times 14 \times 14 = 153.86$

Area of small triangle → $\frac{1}{2} \times 14 \times 14 = 98$

Area of half leaf → $153.86 - 98 = 55.86$

Area of big Triangle → $\frac{1}{2} \times 28 \times 28 = 392$

$153.86 + 98 = 251.86$

$392 - 251.86 = 140.14$

$140.14 \times 2 = 280.28$

Area of shaded parts → $280.28 + 55.86$
$= 336.14$

Ans: 336.14 cm^2

End of Paper