NANYANG PRIMARY SCHOOL

# PRELIMINARY EXAMINATION
## 2021

# 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)
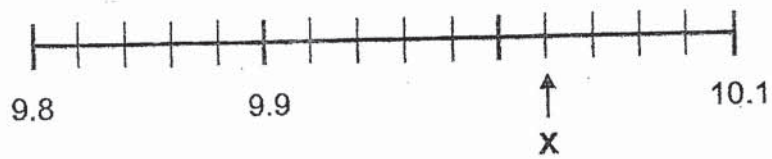
1    Round 659 509 to the nearest thousand.

    (1)    659 000
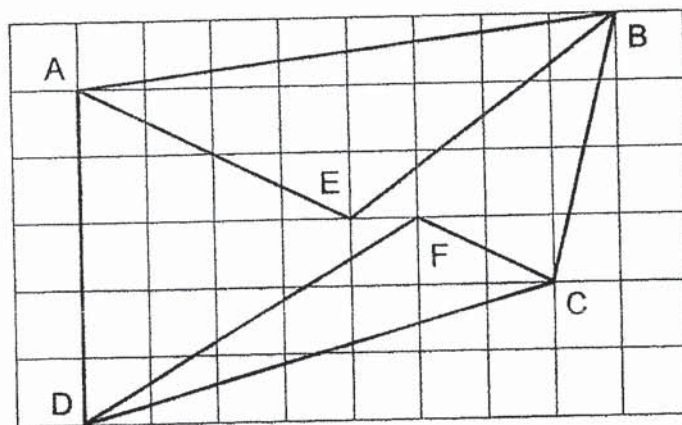
    (2)    659 500

    (3)    660 000

    (4)    700 000

2    In 456.078, the digit 8 stands for _____.

    (1)    8 ones

    (2)    8 tenths

    (3)    8 hundredths

    (4)    8 thousandths

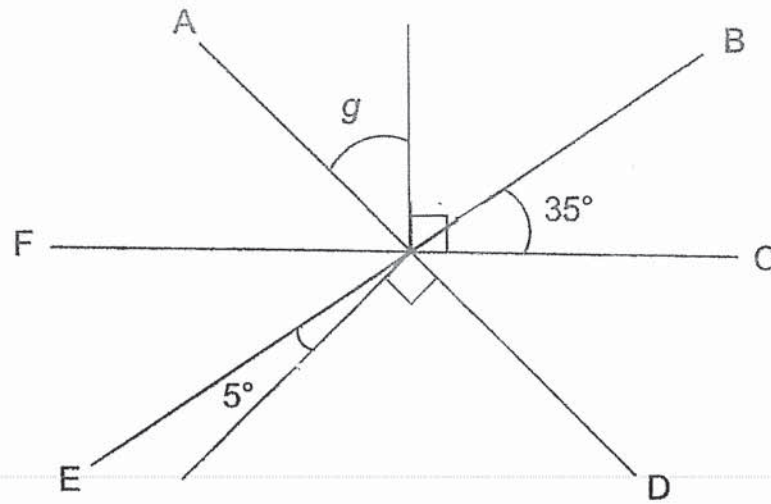3    Part of a scale is shown below.   What is the value of the reading at X?



        9.8                  9.9                  ↑                  10.1
                                                  X

(1)    10.02

(2)    10.01

(3)    9.98

(4)    9.96


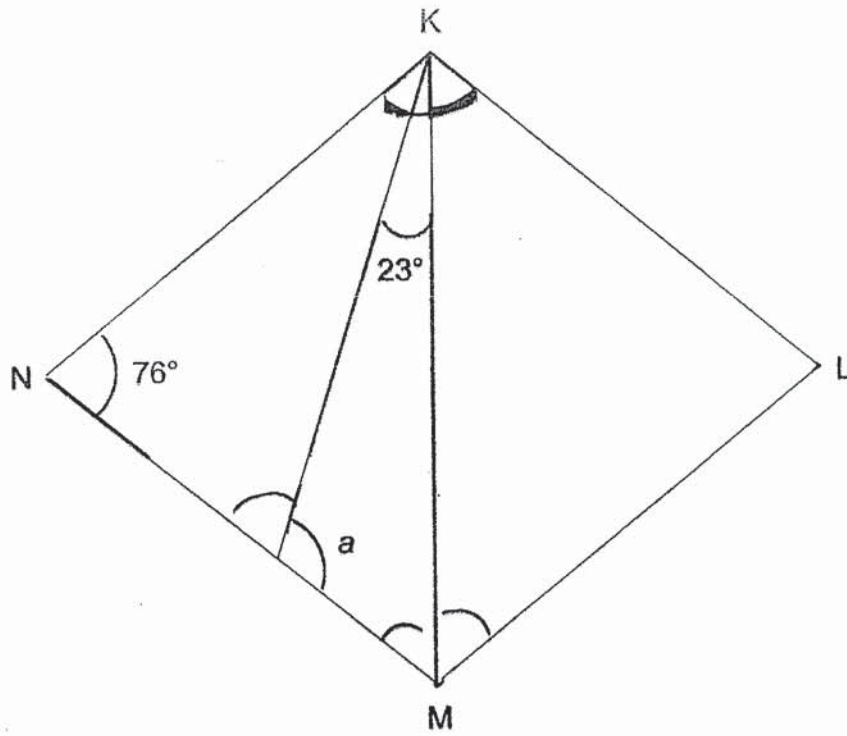4    Which pair of lines in the square grid are parallel?



(1)    AD and BC

(2)    AE and CF

(3)    AB and CD

(4)    BE and DF
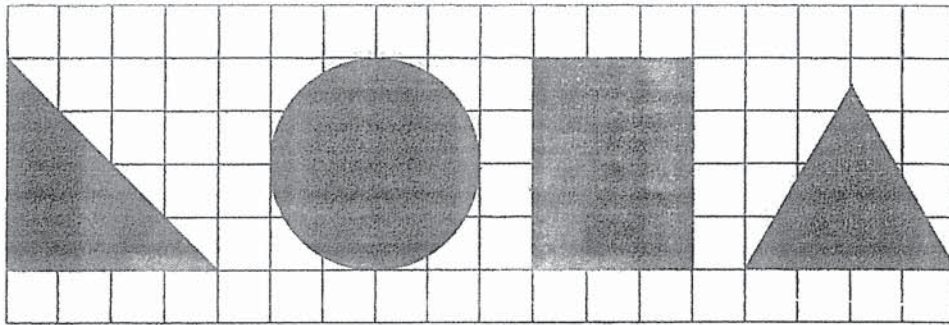
5    AD, BE and FC are straight lines.    Find $\angle g$.

A

B

g

35°

F —————————————————— C

5°

E

D

(1)    35°

(2)    40°

(3)    50°

(4)    55°

6    KLMN is a rhombus.   Find ∠a.



(1)    99°

(2)    104°

(3)    105°

(4)    129°

7    In the square grid below, which shape has the smallest area?



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

8    Johan had 10$n$ pens.   Lih Ming had 3$n$ pens.   Johan had 84 pens more than Lih Ming.   How many pens did Lih Ming have?
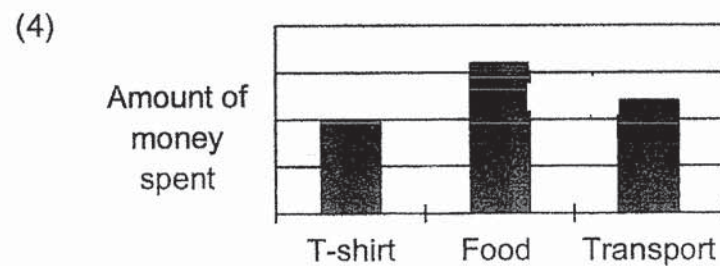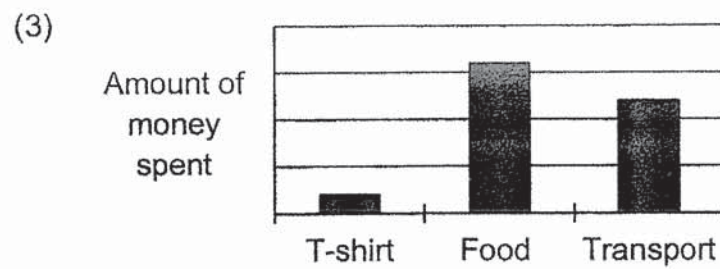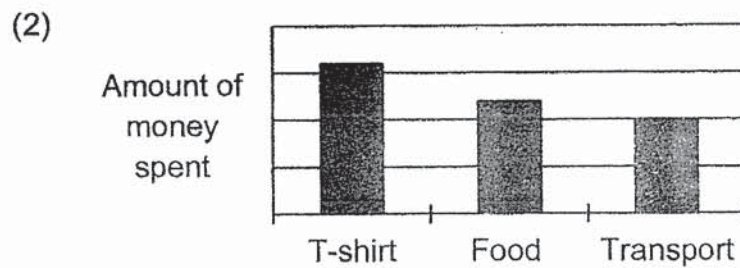
(1)    12

(2)    28

(3)    36

(4)    120

9　The table shows how Mohan spent the money his father gave him.

| | Food | Transport | T-shirt |
|---|---|---|---|
| Amount of money spent | $16 | $12 | $10 |

Which one of the following bar graphs best represents the information shown in the table above?

(1)



Amount of money spent

T-shirt　　Food　　Transport

(2)



Amount of money spent

T-shirt　　Food　　Transport

(3)



Amount of money spent

T-shirt　　Food　　Transport

(4)



Amount of money spent

T-shirt　　Food　　Transport
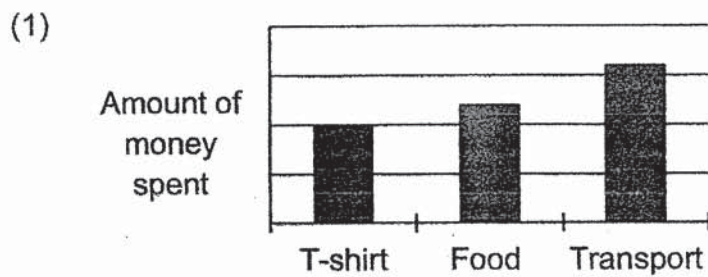
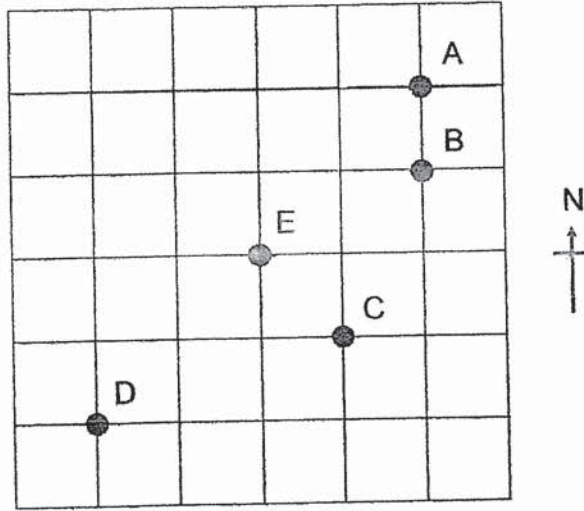10    Which of the following is likely to be the mass of a pen?



(1)    2.25 g

(2)    22.5 g

(3)    2.25 kg

(4)    22.5 kg

11    Arrange the following fractions from the smallest to the greatest.

|        | Smallest | | | Greatest |
|--------|----------|---|---|---------|
| (1) | $\frac{5}{6}$ | $\frac{2}{3}$ | $\frac{4}{9}$ | $\frac{5}{12}$ |
| (2) | $\frac{2}{3}$ | $\frac{4}{9}$ | $\frac{5}{6}$ | $\frac{5}{12}$ |
| (3) | $\frac{2}{3}$ | $\frac{5}{6}$ | $\frac{4}{9}$ | $\frac{5}{12}$ |
| (4) | $\frac{5}{12}$ | $\frac{4}{9}$ | $\frac{2}{3}$ | $\frac{5}{6}$ |

12    In the square grid below, Point E is south-west of Point _____.



(1)    A

(2)    B

(3)    C

(4)    D

13  What is the length of the key as shown below?
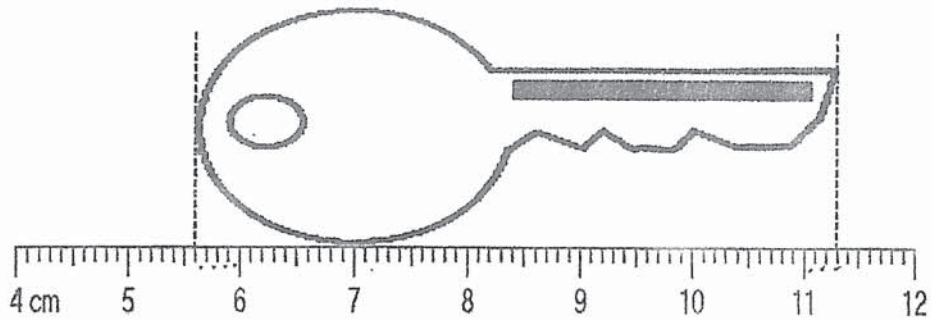


(1)  5.6 cm

(2)  5.7 cm

(3)  6.4 cm

(4)  11.3 cm

14  $\frac{3}{5}$ of the number of beads Yana had was twice the number of beads Tricia had.  Find the ratio of the number of beads Yana had to the number of beads Tricia had.

(1)  10 : 3

(2)  3 : 10

(3)  6 : 5

(4)  5 : 6

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

999 , 991 , 988 , 980 , 977 , 969 , 966 , ...
1st                                        7th

What is the 56th number?

(1)  559

(2)  691

(3)  694

(4)  702

NANYANG PRIMARY SCHOOL

PRELIMINARY EXAMINATION
2021

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 |
|---|---|

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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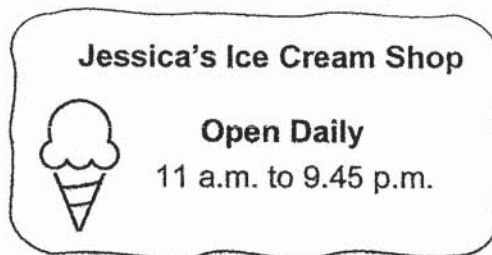**16** Lucy had 20 apples. 7 apples were red and the rest were green. What fraction of the apples were red?

Ans: _____

---

**17** Express 20 013 cm in m.

Ans: _____ m

---

**18** The opening hours of an ice cream shop is shown below. How long is the shop open each day? Give your answer in hours and minutes.

**Jessica's Ice Cream Shop**

**Open Daily**
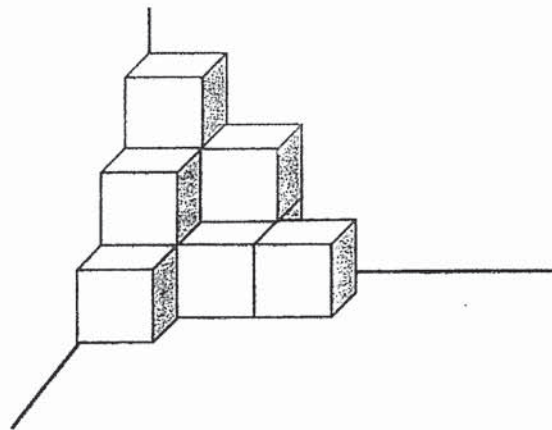11 a.m. to 9.45 p.m.

Ans: _____ h _____ min

---

**19**   Complete the symmetric figure below with AB as the line of symmetry.



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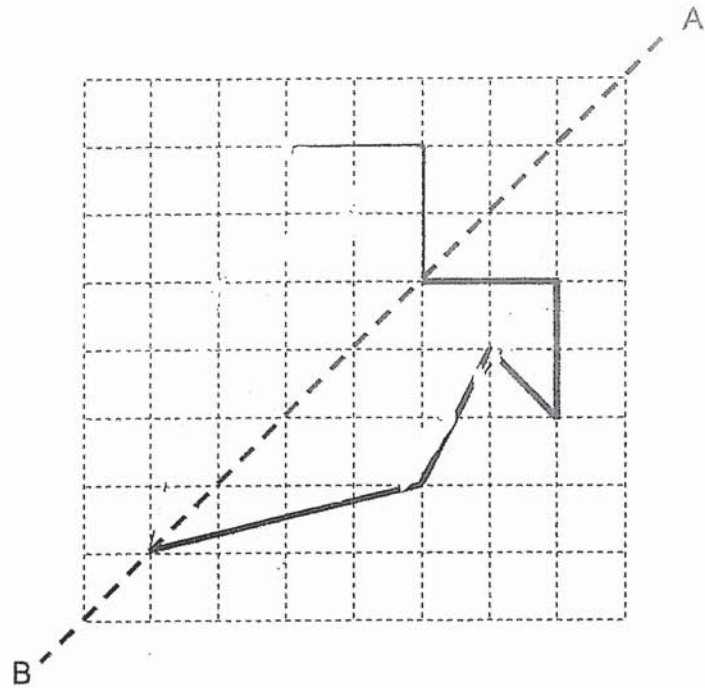
**20**   The solid below is made up of 1-cm cubes.   What is the volume of the solid?



Ans: _____ cm³

---

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**   What is the sum of all the common factors of 12 and 20?

Ans:  _____

---

**22**   (a)   Find the value of $45.01 - 2.8$

(b)   Find the value of $6.3 \times 500$

Ans: (a)  _____

(b)  _____

---

23    The solid below is made up of 8 cubes.

Top view



Front view
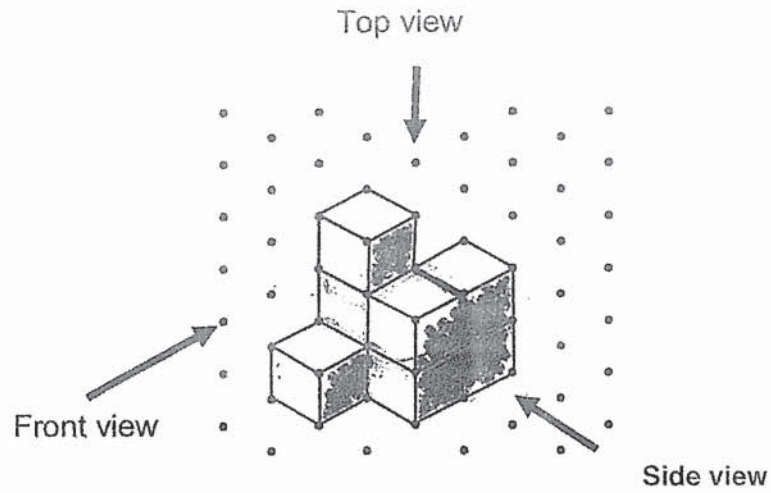
Side view

(a)    Draw the side view of the solid on the grid below.

Side View

(b)    Janice painted the whole solid including the base.    Then she took
       it apart into its 8 cubes.    What is the total number of faces that are
       **not** painted?

Ans: (b) _____

4

24    The length and breadth of a rectangle are (3y + 1) cm and (16 – y) cm respectively.   Find the perimeter of the rectangle given that y = 5.

Ans: _____ cm

---

25    Mr Jung spent $408 on some cheese tarts and some egg tarts.   He bought twice as many cheese tarts as egg tarts.   Each cheese tart cost $3 and each egg tart cost $2.   How many egg tarts did Mr Jung buy?

Ans: _____

---

26  Joan had some rice at first.  After she used $\frac{1}{5}$ kg of rice to cook lunch and $\frac{1}{4}$ kg of rice to cook dinner, she was left with 350 g of rice. How many kilograms of rice did Joan have at first?  Give your answer as a fraction in its simplest form.

Ans: _____ kg

27  Three pieces of ribbon measuring $\frac{1}{5}$ m each were cut from a 1 m long ribbon.  The remaining length of the ribbon was cut into shorter pieces of length $\frac{1}{10}$ m each.  How many pieces of $\frac{1}{10}$ m long ribbon were obtained?

Ans: _____

28  In the figure below, ABCD is a rectangle.  ∠DCE = 38° and ∠BEC = 50°.  Find ∠ABE.
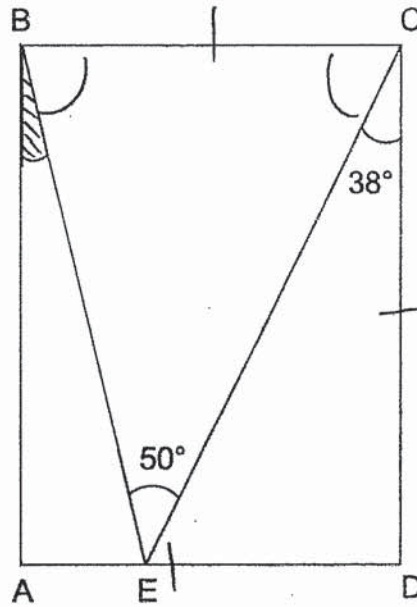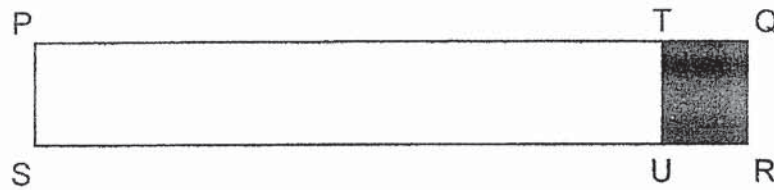


Ans: _____ °

29  In the figure below, ABEF is a parallelogram.  ACD and ADF are triangles.  Find ∠y.
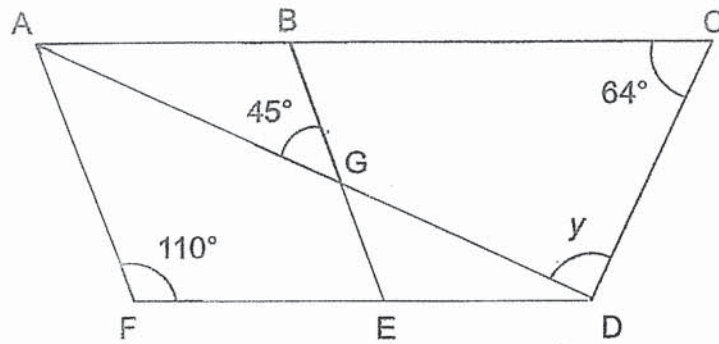


Ans: _____ °

---

30  The perimeter of rectangle PQRS is 8 cm more than that of rectangle PTUS.  10% of rectangle PQRS is shaded.  Find the length of PT.



Ans: _____ cm

End of Paper

8

NANYANG PRIMARY SCHOOL

# PRELIMINARY EXAMINATION
# 2021

## 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 expected, where appropriate.

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.

1    Mr Lim had 100 computers for sale. He sold $w$ computers in the morning and $(2w + 3)$ computers in the afternoon. He had 7 computers left. How many computers did he sell in the morning?

Ans: _____

2    Mr Gopal took a taxi and his taxi fare was based on the charges shown below.

| First 2 km | $3.80 |
|---|---|
| Every additional 500 m or less | $0.50 |

The taxi travelled a total distance of 10.6 km. How much was Mr Gopal's taxi fare?

Ans: _____

3    In a school Cleanliness competition, Class 6W gets a score for each of the four terms in a year.

The table below shows the scores Class 6W gets for Term 1 to Term 3. The score Class 6W gets for Term 4 is not shown in the table.

| Term | Score |
|------|-------|
| 1 | 75 |
| 2 | 65 |
| 3 | 110 |
| 4 | ? |

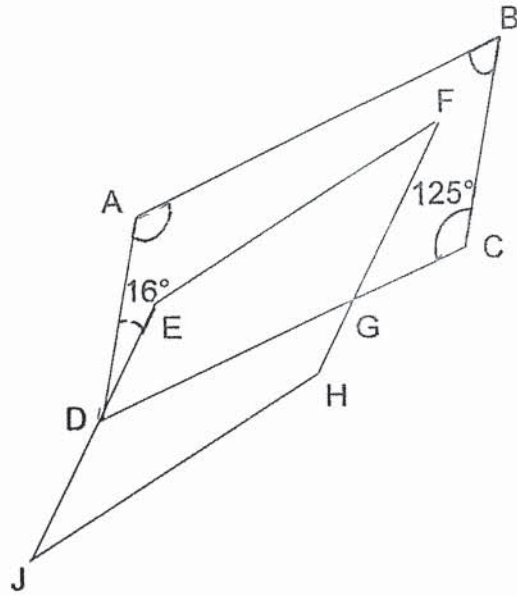Class 6W will qualify for a Cleanliness Award if the class average score for three of the four terms is 90 or more.   What is the lowest score Class 6W must get for Term 4 to qualify for the Cleanliness Award?

Ans: _____

---

4    Don paid $877.40 for a camera after adding 7% GST.   How much GST did he pay?

Ans: $_____

5  ABCD and EFHJ are parallelograms. ∠BCG = 125° and ∠ADE = 16°. Find ∠CGF.



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    A triangle ABF is drawn on a square grid inside a box.
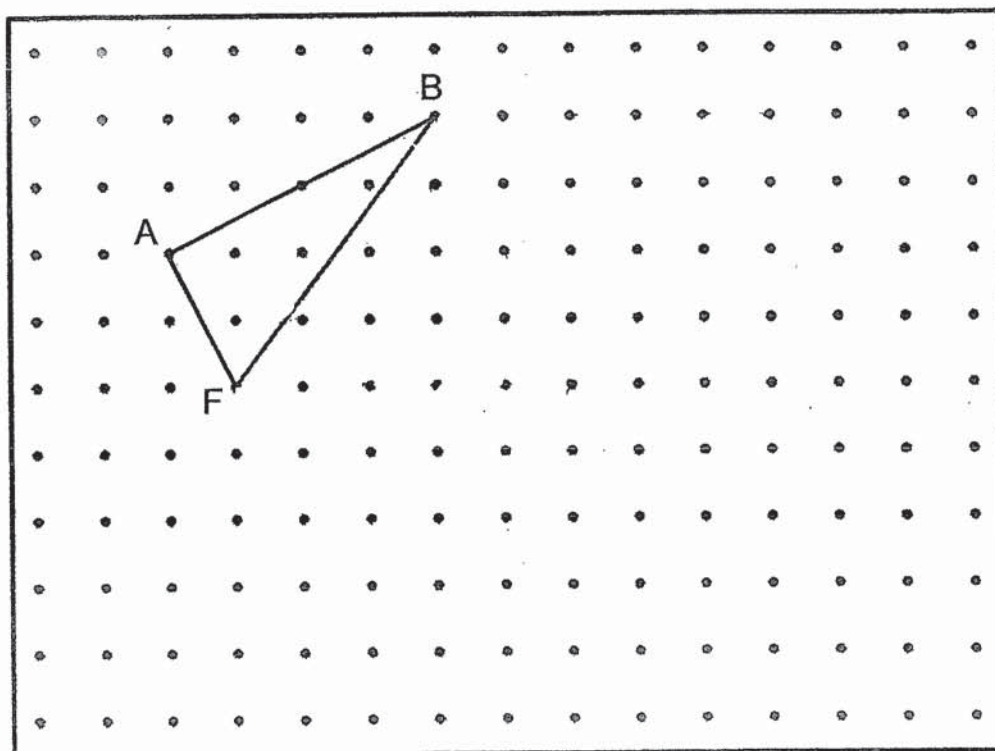


By joining dots on the grid with straight lines,

(a)   draw a trapezium ABCD such that ∠ABC = 90°, AD is 3 times as long as AF and BC = DF.

[2]

(b)   draw a parallelogram BECF.

[1]

7    A baker sold curry puffs at 80¢ each and kaya puffs at 60¢ each.    Kai Ling bought some curry puffs and Faizal bought some kaya puffs from the baker.    Faizal spent $1.20 less than Kai Ling, but bought 5 more puffs than Kai Ling.    How much did Kai Ling spend on the curry puffs?

Ans: _____ [3]

8   Jinrong had a total of 304 chicken pies and blueberry pies at first.   After giving away an equal number of each type of pie, she had $\frac{1}{3}$ of the chicken pies and $\frac{2}{5}$ of the blueberry pies left.   How many blueberry pies were left?

Ans: _____ [3]

9    Four numbers were written on the whiteboard as shown below.

| 128 | 130 | 188 | 198 |

(a) What was the average of the four numbers written on the whiteboard?

(b) After Amir wrote a 2-digit even number on the same whiteboard, the new average of the five numbers became a multiple of five. What was the 2-digit even number written by Amir?

Ans: (a) _____ [1]

(b) _____ [2]

10    Machine P prints 40 identical posters per hour while Machine Q prints 90 such posters per hour. Machine P started printing 30 minutes before Machine Q. When the number of such posters printed by Machine P was equal to the number of such posters printed by Machine Q, both machines were switched off to stop the printing. What was the total number of copies printed by the two machines?

Ans: _____ [3]

11    A florist sold small and big potted plants.   He collected $5 for each small potted plant and $15 for each big potted plant.

The table shows the number of small and big potted plants sold in January and February.   The number of small and big potted plants sold in March is not shown in the table.

| Month | Number of potted plants sold | |
|---|---|---|
| | Small | Big |
| January | 10 | 17 |
| February | 20 | 12 |
| March | ? | ? |

(a)  What was the ratio of the amount of money collected from selling the small potted plants in January to the amount of money collected from selling the big potted plants in January?   Express the ratio in its simplest form.

(b)  The total amount of money collected from selling the big potted plants from January to March was $585.   How many big potted plants were sold in March?

(c)  In April, the number of small potted plants sold was 30.   This was 20% more than the number of small potted plants sold in March. How many small potted plants were sold in March?

(a)  _____ [1]

(b)  _____ [2]

(c)  _____ [2]

9,

12   A rectangular tank measuring 54 cm by 25 cm by 24 cm was $\frac{2}{3}$ full of water.   Khairul had some identical cubical containers filled with water to the brim.   The length of one edge of each cubical container was 6 cm. After he poured all the water from all the cubical containers into the tank, the tank became $\frac{7}{10}$ full of water.   How many such cubical containers did Khairul have?

Ans: _____ [4]

13  The figure shows two stacks of identical cups.   There are 4 cups in the taller stack and 3 cups in the shorter stack.   The height of the taller stack is 25 cm and the height of the shorter stack is 21 cm.
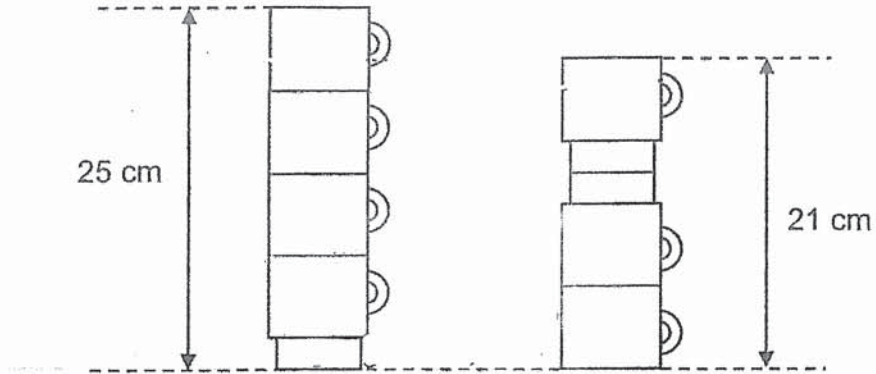


Omar wants to pack the cups as a single stack into a box 87 cm tall. What is the most number of cups he can pack into the box?

Ans: _____ [4]

14    A baker baked the same number of muffins each day for sale. The bar graph below shows the number of muffins sold by the baker from Monday to Thursday last week. The number of muffins sold is not shown on the scale.
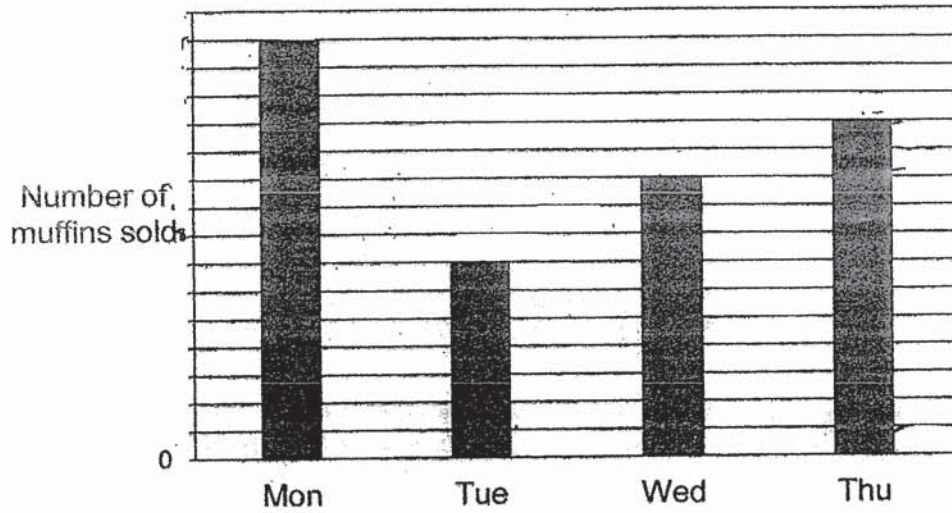


(a)    On which day was the number of muffins left unsold the least?

(b)    The baker sold 34 more muffins on Thursday than on Wednesday. Each time a customer bought 8 or more muffins, a free gift was given. What was the greatest number of free gifts given to the customers from Monday to Thursday in all?

Ans:    (a) _____ . [1]

        (b) _____ [3]

15    Mr Ng had some red pens, blue pens and green pens.   The ratio of the
number of red pens to the number of blue pens was 2 : 3 and the ratio
of the number of blue pens to the number of green pens was 9 : 7.   After
he gave away some green pens and bought 26 blue pens, the total
number of blue pens and green pens decreased by 25%.   In the end,
the total number of red pens, blue pens and green pens he had was 576.
How many green pens did he give away?

Ans: _____ [4]

16   In the figure below, DFGH is a parallelogram and ABCH is a trapezium. AB is parallel to HC. BCDE, GHC, AHD and GFE are straight lines. ∠BAH = 40°, ∠AGH = 65° and ∠BCH = 120°.
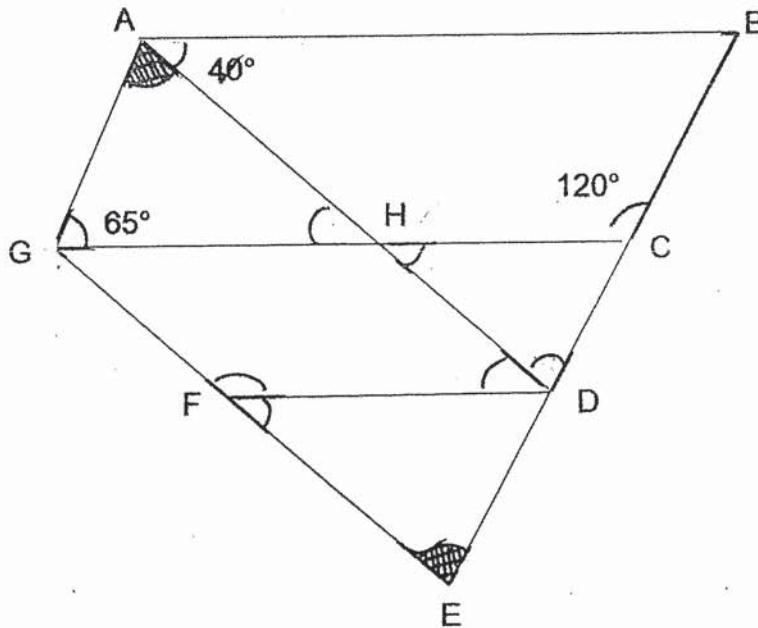


(a)   Find ∠GAH.

(b)   Find ∠DEF.

(a)   _____ [1]

(b)   _____ [2]

(c)   The figure above is not drawn to scale. 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 |
|---|---|---|---|
| AGH is an isosceles triangle. | | | |
| AG is parallel to DE. | | | |

[1]

14

17  The figure shows a circle and 4 identical semicircles drawn inside a square of side 12 cm. O is the centre of the circle.



12 cm
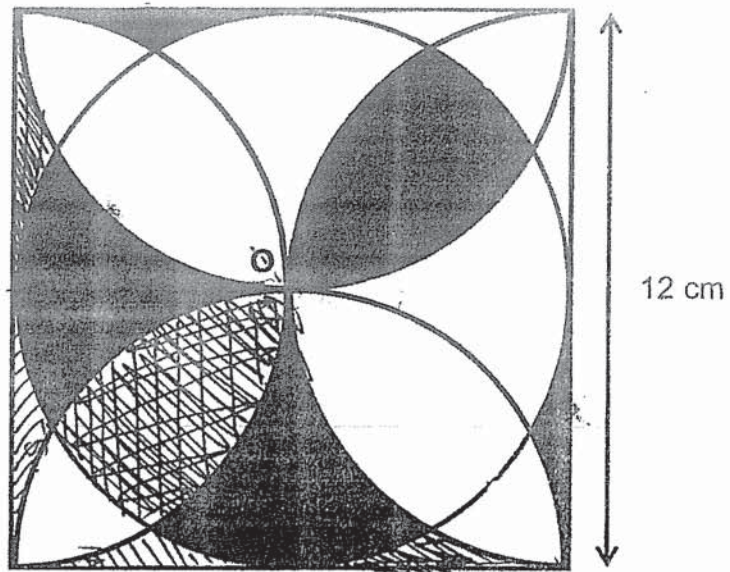
(a) Find the circumference of the circle.

(b) What is the total area of the shaded parts?
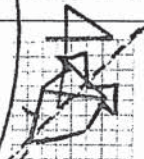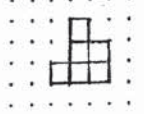
Take $\pi = 3.14$

Ans: (a) _____ [1]

(b) _____ [4]

# ANSWER KEY

YEAR : 2021
LEVEL : PRIMARY 6
SCHOOL : NAN YANG
SUBJECT : MATHEMATICS
TERM : PRELIMINARY

## BOOKLET A (PAPER 1)

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

## BOOKLET B (PAPER 1)

| Q16 | $\frac{7}{20}$ | Q17 | $20013 \div 100 = 200.13m$ |
|-----|----------------|-----|----------------------------|
| Q18 | 11a.m → 9p.m (10h)<br>9pm → 9.45p.m (45min)<br>ANS : 10h45min | Q19 |  |
| Q20 | 10cm3 | Q21 | $1 + 2 + 4 = 7$ |
| Q22 | a) $45.01 - 2.8 = 42.21$<br>b) $6.3 \times 100 \times 5 = 630 \times 5$<br>$= 3150$ | Q23 | a) Side View<br><br>b) 18 |
| Q24 | $3 \times 5 + 1 = 16$ (L)<br>$16 - 5 = 11$ (B)<br>$16 + 11 + 16 + 11 = 54cm$ | Q25 | $\$408 \div (\$3 + \$3 + \$2) = 51$ |
| Q26 | $\frac{350}{1000} = \frac{7}{20}$<br>$\frac{1}{5} + \frac{1}{4} + \frac{7}{20} = \frac{4}{20} + \frac{5}{20} + \frac{7}{20} = \frac{16}{20}$<br>$= \frac{4}{5}$ kg | Q27 | $\frac{1}{5} \times 3 = \frac{3}{5}$<br>$1 - \frac{3}{5} = \frac{2}{5}$<br>$\frac{2}{5} \div \frac{1}{10} = \frac{2}{5} \times \frac{10}{1} = 4$ |
| Q28 | $180° - 90° - 38° = 52°$<br>$180° - 50° - 52° = 78°$<br>$180° - 90° - 78° = 12°$ | Q29 | $180° - 110° - 45° = 25°$<br>$180° - 25° - 64° = 91°$ |
| Q30 | TQ → $8 \div 2 = 4$<br>10% → 4<br>90° → $4 \times 9 = 36$ cm | | |

| Q1 | W + 2w + 3 + 7 = 100<br>3w + 10 = 100<br>3w = 100 − 10 = 90<br>W = 90 ÷ 3 = 30 | Q2 | First 2km → $3.80<br>10.6 − 2 = 8.6<br>8.6 x 1000 = 8600<br>8600 ÷ 500 = 17.2 ≈ 18<br>18 x $0.50 = $9<br>$3.80 + $9 = $12.80 |
|---|---|---|---|
| Q3 | 90 x 3 = 270<br>270 − 110 − 75 = 85 | Q4 | 107% → $877.40<br>1% → $877.40 ÷ 107 = $8.20<br>7% → $8.20 x 7 = $57.40 |
| Q5 | 180° − 125° − 16° = 39°<br>180° − 39° = 141°<br>180° − 141° = 39° | Q6 | |
| Q7 | $0.80 − $0.60 = $0.20<br>5 x $0.60 = $3<br>$3 + $1.20 = $4.20<br>$4.20 ÷ 20 = 21<br>21 x $0.80 = $16.80 | Q8 | $1-\frac{1}{3}=\frac{2}{3}$ (give away chicken pies)<br>$1-\frac{2}{5}=\frac{3}{5}$ (give away blueberry pies)<br>$\frac{2}{3}$ cp → $\frac{3}{5}$ BP<br>$\frac{6}{9}$ cp → $\frac{6}{10}$ BP<br>9u + 10u = 19u<br>19u → 304<br>1u → 304 ÷ 19 = 16<br>10u − 6u = 4u<br>4u → 4 x 16 = 64 |
| Q9 | a) (128 + 130 + 188 + 198) ÷ 4<br>= 644 ÷ 4 = 161<br>b) 140 x 5 = 700<br>700 − 644 = 56 | Q10 | 40 ÷ 2 = 20 (Machine P,30min)<br>90 − 40 = 50 (diff b/w P and Q)<br>20 ÷ 5 = 0.4 (time taken)<br>0.4 x 90 = 36<br>36 x 2 = 72 |
| Q11 | a) 10 x 5 = 50 (small)<br>17 x 15 = 255 (big)<br>S : B<br>50 : 255<br>10 : 51<br>b) 17 + 12 = 29<br>29 x $15 = $435<br>$585 − $435 = $150<br>$150 ÷ $15 = 10<br>c) 120% → 30<br>1% → 30 ÷ 120 = 0.25<br>100% → 0.25 x 100 = 25 | Q12 | $\frac{7}{10}-\frac{2}{3}=\frac{1}{30}$<br>$\frac{1}{30}$ x 54 x 25 x 24 = 1080<br>6 x 6 x 6 = 216<br>1080 ÷ 216 = 5 |
| Q13 | 25 x 2 − 21 = 29 | Q14 | a) 2u = 34 |

| | | | |
|---|---|---|---|
| Q13 | $29 \div 5 = 5.8$<br>$25 - 4 \times 5.8 = 1.8$<br>$87 - 1.8 = 85.2$<br>$85.2 \div 5.8 = 14.689 \approx 14$ | Q14 | $1u \rightarrow 34 \div 2 = 17$<br>Mon $\rightarrow (15 \times 17) \div 8$<br>$= 255 \div 8 = 31.875 \approx 31$<br>Tue $\rightarrow (7 \times 17) \div 8$<br>$= 119 \div 8 = 14.875 \approx 14$<br>Wed $\rightarrow (10 \times 17) \div 8$<br>$= 170 \div 8 = 21.25 \approx 21$<br>Thur $\rightarrow (12 \times 17) \div 8$<br>$= 204 \div 8 = 25.5 \approx 25$<br>ANS : MONDAY<br>b) $31 + 14 + 21 + 25 = 91$ |
| Q15 | $9u + 7u = 16u$<br>$\frac{25}{100} \times 16u = 4u$<br>$16u + 12u = 18u$<br>$18u \rightarrow 576$<br>$1u \rightarrow 576 \div 18 = 32$<br>$16u \rightarrow 32 \times 16 = 512$<br>$12u \rightarrow 32 \times 12 = 384$<br>$384 - 26 = 358$<br>$512 - 358 = 154$ | Q16 | a) $180° - 65° - 40° = 75°$<br>b) $180° - 40° = 140°$ <GHD<br>$180° - 140° = 40°$ <FGH<br>$180° - 120° = 60°$ <HCD<br>$180° - 40° - 60° = 80°$<br>Q16c .<br><br>
<table><tr><td></td><td>True</td><td>False</td></tr><tr><td>AGH is an isosceles triangle.</td><td>✓</td><td></td></tr><tr><td>AG is parallel to DE.</td><td>✓</td><td></td></tr></table> |
| Q17 | a) $3.14 \times 12 = 37.68$<br>b) $\frac{1}{4} \times 3.14 \times 6 \times 6 = 28.26$<br>(quadrant)<br>$6 \times 6 = 36$<br>$36 - 28.26 = 7.74$<br>(1 boomerang)<br>$28.26 + 7.74 + 7.74$<br>$= 43.74 \text{cm}2$ | | |