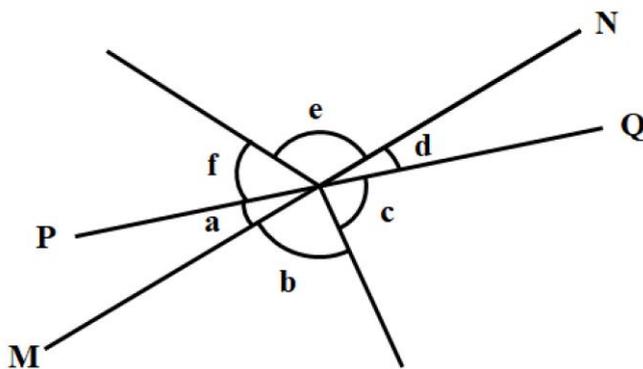


MATHEMATICS · 2023 Mock
PAPER 1
(BOOKLET A)

1. Round off 23701 to the nearest thousand.

- (1) 20000
- (2) 23000
- (3) 23700
- (4) 24000

2. In the figure, MN and PQ are straight lines. Which one of the following is true?

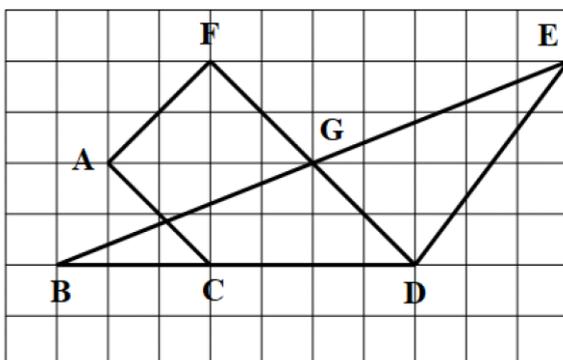


- (1) $\angle c + \angle d = 90^\circ$
- (2) $\angle b + \angle c = 180^\circ$
- (3) $\angle e = \angle b$
- (4) $\angle a = \angle d$

3. Express $7\frac{1}{20}$ as a decimal.

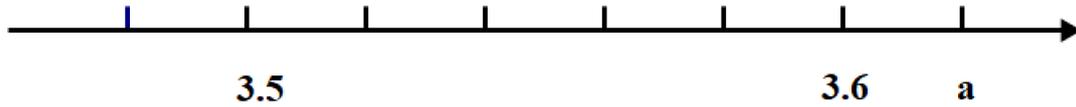
- (1) 7.02
- (2) 7.05
- (3) 7.50
- (4) 7.20

4. Which two lines are perpendicular to each other?



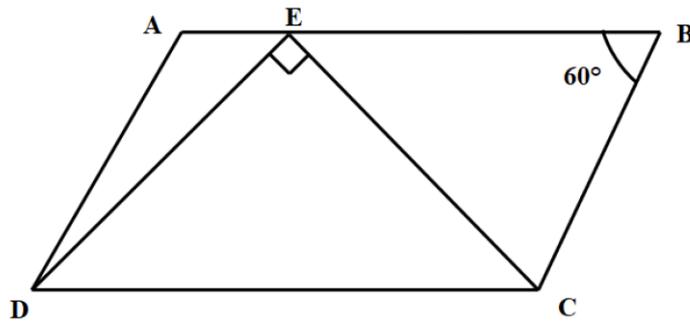
- (1) BE and FD
- (2) AC and AF
- (3) DE and DF
- (4) AC and DF

5. In the number line below, what is the value of a ?



- (1) 3.7
- (2) 3.62
- (3) 3.64
- (4) 3.65

6. In the figure, DEC is an isosceles right triangle. ABCD is a parallelogram with $\angle B = 60^\circ$. Find $\angle BCE$.



- (1) 55°
- (2) 65°
- (3) 75°
- (4) 85°

7. Mr Lim had \$80, After buying 7 identical ties, he had \$x left. How much did Mr Lim pay for each tie?

- (1) $\$(80 - 7x)$
- (2) $\left(80 - \frac{x}{7}\right)$
- (3) $\left(\frac{80 - x}{7}\right)$
- (4) $\left(\frac{80x}{7}\right)$

8. Arrange the weight below from the heaviest to the lightest.

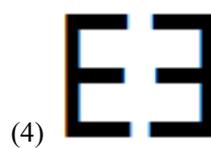
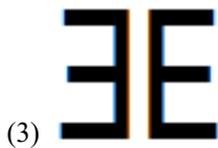
- a. 5.25kg b. $5\frac{1}{3}\text{kg}$ c. $5\text{kg}500\text{g}$ d. $\frac{26}{5}\text{kg}$

- | | heaviest | | lightest | |
|-----|----------|---|----------|---|
| (1) | c | a | b | d |
| (2) | c | b | a | d |
| (3) | d | c | b | a |
| (4) | d | b | c | a |

9. Mary was in a library from 7.50 a.m. to 2.00 p.m. yesterday. How long did she stay in the library?

- (1) 6 h 50 min
 (2) 5 h 10 min
 (3) 5 h 50 min
 (4) 6 h 10 min

10. Each figure below is made up of 2 letter "E". Which one doesn't have a line of symmetry?

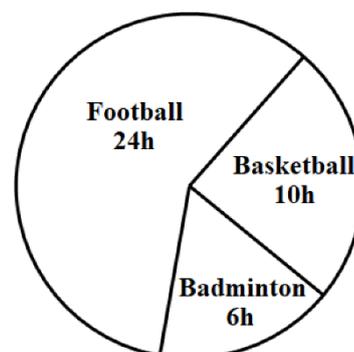


11. At first, Jack and Tony were facing the same direction. Then Jack turned 120° clockwise to face south and Tony turned 100° anti-clockwise. Which direction did Tony face in the end?

- (1) South-East
 (2) South-West
 (3) North-West
 (4) North-East

12. The pie chart shows how much time Jack spent on various sports. What fraction of the time did he spend on football?

- (1) $\frac{1}{5}$
 (2) $\frac{3}{5}$
 (3) $\frac{2}{7}$
 (4) $\frac{3}{8}$



13. A book has 120 pages. Jack read $\frac{2}{5}$ of the book on the first day, and read $\frac{1}{3}$ of the rest on the second day. Which page should Jack start on the third day?

- (1) 50
- (2) 67
- (3) 73
- (4) 82

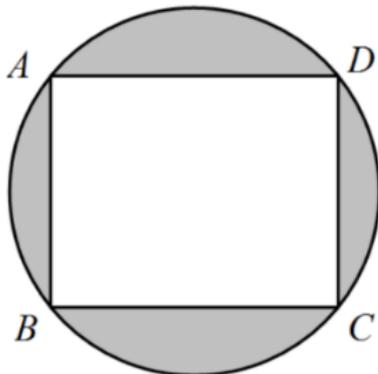
14.

Container	Number of pens	Percentage of pens which are green
A	200	5%
B	300	10%

What percentage of the total number of pens in containers A and B are green?

- (1) 6%
- (2) 7%
- (3) 8%
- (4) 9%

15. In rectangle ABCD, $AD = 4\text{cm}$, $AB = 3\text{cm}$, $AC = 5\text{cm}$. Find the area of the shaded part. ($\pi = 3.14$)



- (1) 66.5cm^2
- (2) 7.625cm^2
- (3) 19.625cm^2
- (4) 6.625cm^2

MATHEMATICS · 2023 Mock
PAPER 1
(BOOKLET B)

16. Write twelve thousand and twenty in numerals.

Ans: _____

17. Find the value of 150×23

Ans: _____

18. Round 23.553 to the nearest tenth.

Ans: _____

19. Find the value of 0.45×60

Ans: _____

20. Alex had 1.37 kg of flour at first. She used 350 g of it. How many kilograms of flour was left?

Ans: _____

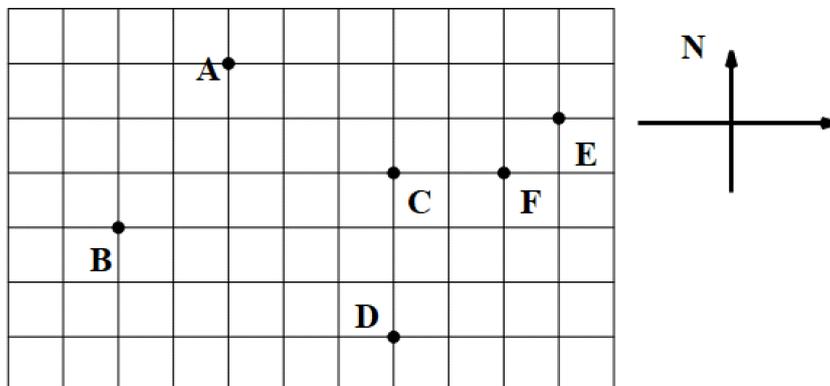
21. (a) Find the value of $4 - \frac{3}{5} - \frac{2}{3}$

Ans: _____ [1]

(b) Write down one fraction between $\frac{1}{7}$ and $\frac{2}{7}$

Ans: _____ [1]

22. Six buildings on a map of a city are shown in the grid below.



(a) In which direction is A with respect to D?

(b) Timmy is at one of the buildings. He is facing F. When he turns 90° clockwise, he faces D.

Which building is Timmy at?

Ans: (a) _____ [1]

(b) _____ [1]

23. Jack had 50 candies and Mary had 38 candies.

(a) Find the ratio of the number of candies Jack and Mary had. Give your answer in the simplest form.

Ans: (a) _____ [1]

(b) The ratio of the number of candies Jack and Alex had is $25:17$. How many candies did Alex have?

Ans: (b) _____ [1]

24. Mary wants to buy some violins. If she buys 5 violins, she will have \$150 left. If she buys 8 violins, she will have \$30 left. How much money does she have?

Ans: \$ _____

25. The sum of two two-digit numbers is 79, One of the numbers is a multiple of 6. The other number is a factor of 38. What is the difference between the two numbers?

Ans: _____

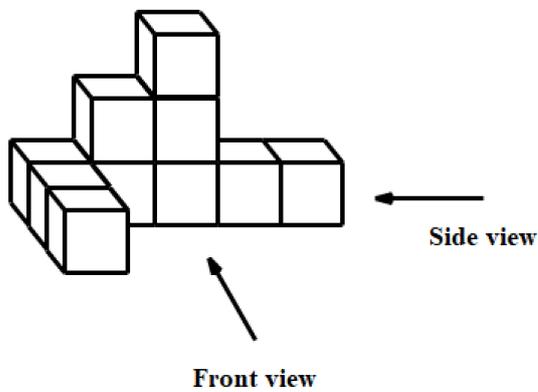
26. Use all the digits 1, 3, 5, 7 to form

- (a) the smallest multiple of 5
- (b) the number closest to 5000

Ans: (a) _____ [1]

Ans: (b) _____ [1]

27. Tom builds a solid using 10 cubes each with side 1 cm.



(a) Tom painted the whole solid, including the base. What was the total painted area?

Ans: (a) _____ cm²[1]

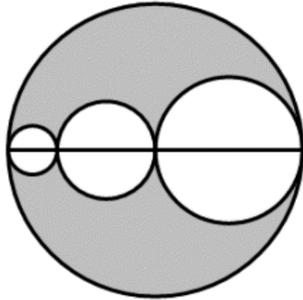
(b) Tom added some cubes of side 1 cm to the solid to form a cuboid 3 cm by 5 cm by 5 cm. How many cubes did he add?

Ans: (b) _____ [1]

28. A square and a triangle have equal perimeters. The lengths of the three sides of the triangle are 7.1 cm, 9.2 cm and 11.7 cm. What is the area of the square?

Ans: _____ cm^2

29. There is a circle whose diameter is 6cm with three smaller circles inside it arranged side by side, of which the diameters are 1cm, 2cm and 3cm. Find the shaded area. ($\pi=3.14$)



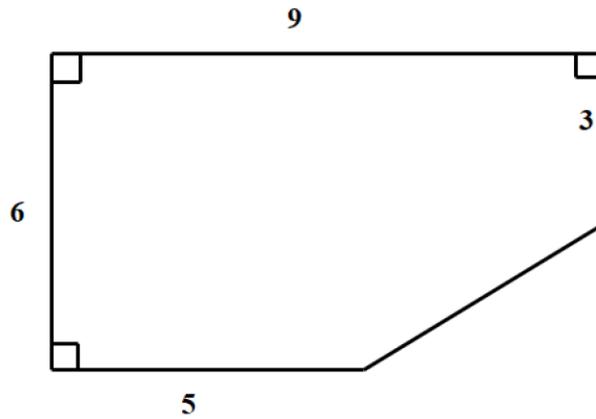
Ans: _____ cm^2

30. There are 1000 students in a school. 60% of the students are boys and the rest are girls. Given that 44% of the students participate in sports competitions and 52% of the boys participate in sports competitions. How many girls participate in sports competitions?

Ans: _____ cm

Paper 2

1. In the figure below, find the area of the pentagon.



Ans: _____

2. Cupcakes are sold in boxes of 6, 16 or 24. Alex buys 100 cupcakes. What is the least number of boxes Alex buys?

Ans: _____

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

1, 3, 7, 4, 1, 3, 7, 4, 1, 3, 7, 4, 1, 3, 7, ...

(a) What is the 2022nd number?

(b) What is the sum of the first 2022 numbers?

Ans: (a) _____ [1]

Ans: (b) _____ [1]

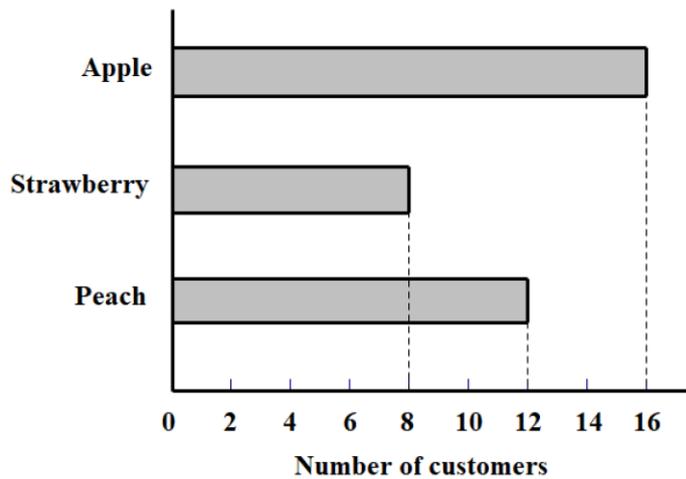
4. Shanti took a taxi from home to her office. Her taxi fare was based on the charges shown.

First 1 km	\$3.20
Every additional 400m or less	\$0.22
Every 45 seconds of waiting or less	\$0.22

The taxi stopped once at a traffic light for 2 min and travelled a total distance of 4.2 km to reach Shanti's office. How much was her taxi fare?

Ans: \$ _____ .

5. Tony asked some customers to choose their favourite fruit. The results are shown in the graph below.

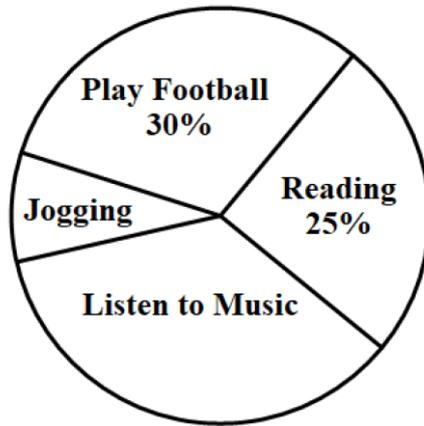


- (a) What is the ratio of the number of customers who chose apple to the number who chose strawberry to the number who chose peach?
- (b) Tony bought a total of 720 apples, strawberry and peach according to the same ratio in part (a). How many more apples than peaches were bought?

Ans: (a) _____ [1]

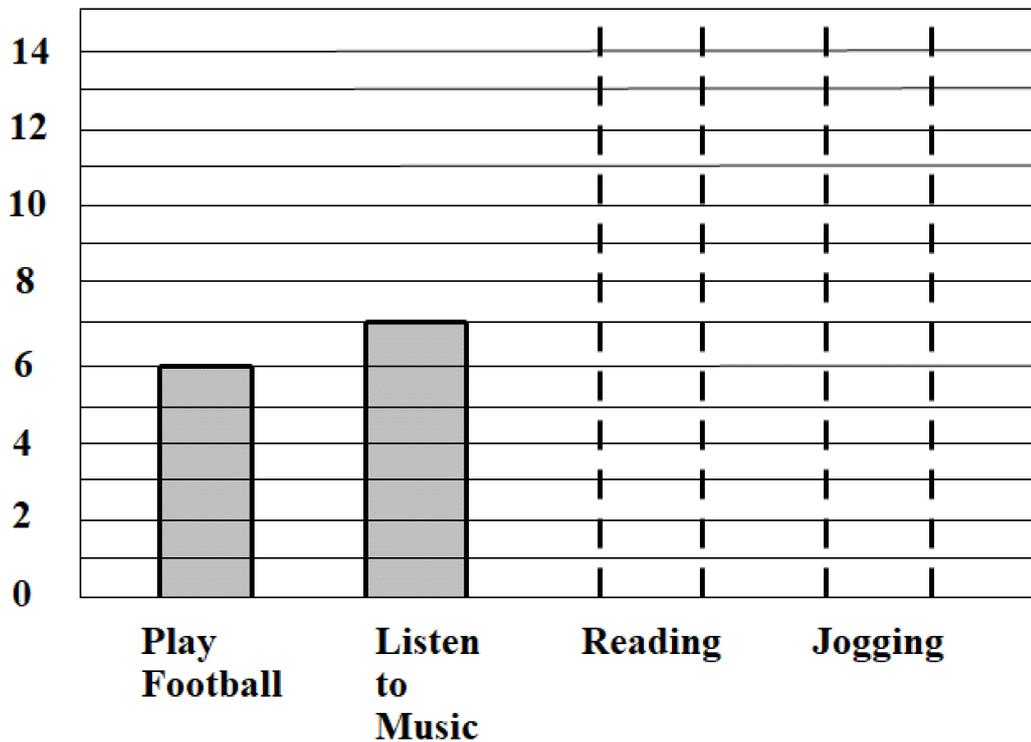
(b) _____ [1]

6. The pie chart below shows how Jack spent his time on the weekend.



The amount of time spent is also represented by the bar graph below. The bars for the amount of time spent on Reading and Jogging have not been drawn.

Hours

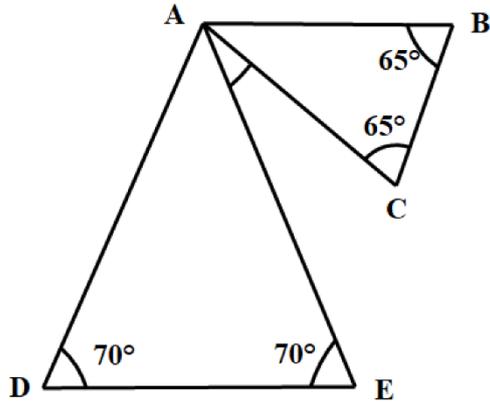


- (a) What percentage of his time did Jack spend on Jogging?
- (b) What fraction of his time did Jack spend on “Listen to Music”?
- (c) Draw the bars for the amount of time spent on Reading and Jogging in the graph above. (by shading) [1]

Ans: (a) _____ [1]

Ans: (b) _____ [1]

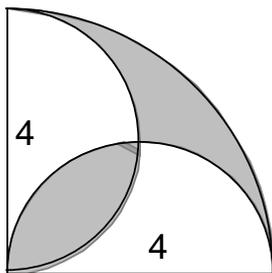
7. In the figure below, AB is parallel to DE. Find $\angle DAC$.



Ans: _____°[3]

8. In the figure below, two semicircles are inside a quarter of a large circle. The radius of this large circle is 4.

- (a) Find the area of the shaded part. Take $\pi = 3.14$.
 (b) Find the perimeter of the shaded part. Take $\pi = 3.14$



Ans:(a) _____[2]

(b) _____[2]

9. Jack had some stickers. He gave $\frac{2}{7}$ of his stickers to his brother and $\frac{2}{5}$ of the rest of the stickers to his sister. Finally, the number of stickers which he gave to his brother and sister in total was 10 more than the rest of the stickers.

(a) The rest of the stickers are what fraction of the original?

Ans: (a) _____ [1]

(b) Find the number of stickers of Jack originally.

Ans: (b) _____ [2]

10. The price of a toy is \$3. If Jack buys this toy, the ratio of the rest of Jack's money to the amount of Mary's money will be $2:5$. If Mary buys this toy, the ratio of the amount of Jack's money to the rest of Mary's money will be $8:13$. Find the amount of Jack's money.

Ans:\$ _____ [3]

11. A sports shop bought 50 footballs and 40 basketballs. The footballs cost \$3000. The selling price of football was 9% more than the purchasing price of it. The selling price of basketball was 11% more than the purchasing price of it. After selling out these footballs and basketballs, the shop got a profit of \$490.

(a) Find the profit from selling all basketballs.

Ans:(a)\$ _____ [2]

(b) Find the purchasing price of each basketball.

(b)\$ _____ [1]

12. When Alex started jogging from his home, Ben was 1.8 km ahead. Alex jogged at 12 km/h and Ben walked at 4 km/h. They went in the same direction and did not change their speeds throughout.

(a) How far did Alex jog in 45 minutes?

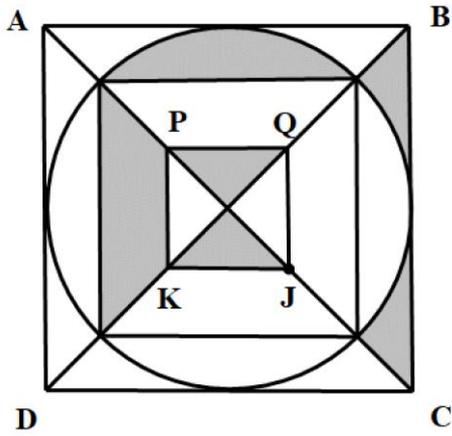
Ans: (a) _____ km [1]

(b) Who was ahead after 45 minutes? How far apart were they?

Ans: (b) _____ was ahead

Distance apart: _____ km [2]

13. The side of square ABCD is 10cm . The area of the shaded part is 26cm^2 .



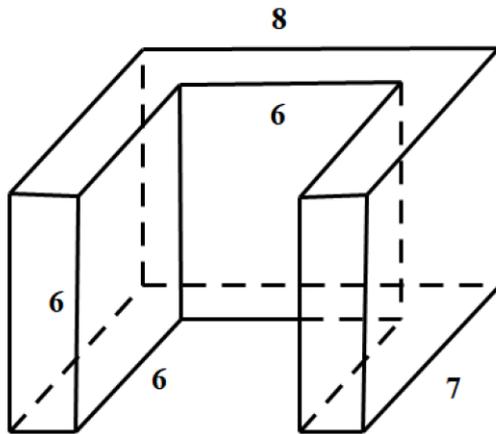
(a) Find the area of circle. (Take $\pi = 3.14$)

Ans:(a) _____ cm^2 [2]

(b) Find the length of side of square PQJK.

(b) _____ cm [2]

14. The length of a cuboid is 8cm, the width of it is 7cm and the height of it is 6cm. A cube is cut from this cuboid as the figure shown below.



(a) Find the surface area of the shape above.

Ans: (a) _____ cm^2 [3]

(b) Find the volume of the shape above.

Ans: (b) _____ cm^3 [2]

15. Jack and Tony had a total of \$86. Later, Jack spent $\frac{4}{9}$ of his money and Tony spent \$16.

Then they had the same amount of money.

- (a) Find the amount of money of Jack at first.
- (b) Find the amount of money of Tony in the end.

Ans: (a) _____ [2]

Ans: (b) _____ [2]

16. A teacher decided to give some candies to students A, B, and C. According to the original plan, the ratio of the number of candies of A to B to C was $5:4:3$. In fact, the ratio of the number of candies of A to B to C was $7:6:5$. One of them got 15 more candies than the original plan.

- (a) Who got 15 more candies than the original plan?
- (b) How many candies does the teacher have originally in total?

Ans: (a) _____ [3]

Ans: (b) _____ [2]

17. The first four figures of a pattern are shown below.



Figure 1

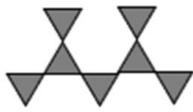


Figure 2



Figure 3



Figure 4

The table shows the number of triangles used for each figure.

Figure Number	1	2	3	4	5	...	n
Number of triangles	4	7	10			...	

- Fill in the table for Figure 4 and Figure 5. [1]
- Fill in the table for Figure n . [1]
- Find the number of triangles in Figure 2020.
- Alex uses 298 triangles to form Figure x . Find the value of x .

Ans: (c) _____ [1]

Ans: (d) _____ [2]