Examination for the Enlistment of Soldiers in the Armed Forces of Malta (Regular Force) 2024

Subject: **Mathematics**

Date: **13th September 2024**

Time: **09.00 – 10.30 (One and a half hours)**

Instructions to candidates:

- This examination paper consists of THREE sections: A, B and C. Answer all 50 questions in these sections.

- Each question contains four possible answers, but only ONE is correct.

- It is recommended that candidates mark ONLY the correct answer initially in pencil to allow for any potential changes in answers. Candidates are then requested to mark the final answer in black or blue ink.

  e.g. If answer C is selected, fill in the appropriate circle as shown below.
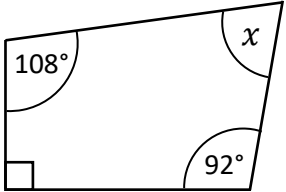
  50.   Ⓐ Ⓑ ⬤ Ⓓ

- Each question carries two (2) marks.

- Diagrams are NOT drawn to scale.

- The use of calculators is allowed.

Section A

This section contains twenty (20) questions (from 1 to 20).
Answer ALL questions.

1	The next term in the sequence 8.4, 8.8, 9.2, …… is: A) 10.0 B) 10.2 C) 9.4 D) 9.6

1   The next term in the sequence 8.4, 8.8, 9.2, …… is:

    A) 10.0   B) 10.2   C) 9.4   D) 9.6

2   Which factor of 24, from the ones listed below, is also a prime number?

    A) 1   B) 3   C) 4   D) 6

3   Pork costs €6.80 per kilogram.
How much do three and a half kilograms cost?

    A) €10.20   B) €13.60   C) €23.80   D) €17.00

4   What is the value of $\dfrac{\sqrt{16}}{2^4}$ as a fraction?

    A) 1   B) $\dfrac{1}{2}$ C) $\dfrac{1}{8}$ D) $\dfrac{1}{4}$

5   Convert 3.48 litres to millilitres.

    A) 3480 ml   B) 3048 ml   C) 348 ml   D) 34 800 ml

6   22.5% is the same as:

    A) 22.5   B) 2.25   C) 0.225   D) $\dfrac{225}{100}$

7   Angles on a straight line add up to:

    A) 45°   B) 90°   C) 180°   D) 360°

8   Simplify: $10x + 8(2x - 3)$

    A) $26x - 24$ B) $26x + 24$ C) $18x - 3$ D) $26x - 3$

9	Simplify the ratio 32 cm : 2 m			
	A) 8 : 20	B) 4 : 50	C) 4 : 25	D) 16 : 1

10	Work out: $18.4 + 16.6 \times 3$			
	A) 35	B) 68.2	C) 31.4	D) 105

11	A film starts at 20:45 and finishes at 23:35. How long is the film?			
	A) 2 hr 50 min	B) 2 hr 45 min	C) 2 hr 35 min	D) 2 hr 20 min

12	Calculate the size of angle x.

	A) 60°	B) 70°	C) 90°	D) 100°

13	Calculate the range of the following set of numbers:

$$11.7, \quad 13.5, \quad 2.4, \quad 12.6, \quad 18.9$$

	A) 11.8	B) 12.6	C) 16.5	D) 7.2

14	$\dfrac{8}{12}$ is the same as:

	A) $\dfrac{20}{30}$	B) $\dfrac{24}{48}$	C) 0.8	D) $\dfrac{16}{12}$

15	A recipe states that 150 g of sugar are needed to make 12 muffins. How much sugar is needed to make 30 muffins?			
	A) 250 g	B) 300 g	C) 375 g	D) 450 g

16	Solve: $8x - 4 = 48$			
	A) 5.5	B) 6.5	C) 8	D) 36

17 The value of angle x is:
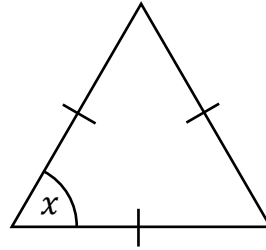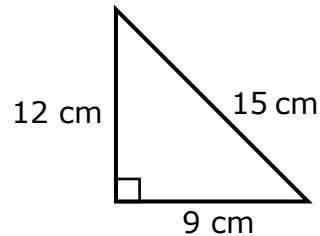
A) 30°   B) 45°   C) 60°   D) 90°

18 The marked price of a sofa is €1200.
During a sale it is sold at a 40% discount.
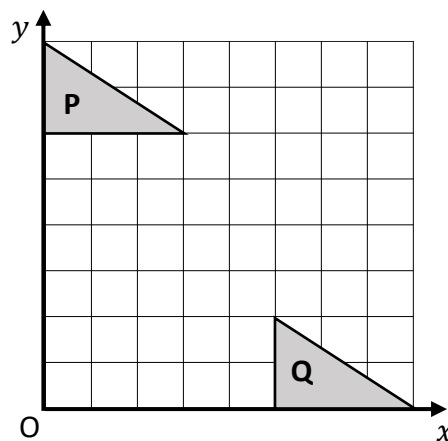What is the discounted price?

A) €1160   B) €600   C) €480   D) €720

19 Work out the area of the triangle.

12 cm   15 cm

9 cm

A) 18 cm²   B) 36 cm²   C) 54 cm²   D) 90 cm²

20 The translation of shape P to shape Q is given by:

A) $\begin{pmatrix} 5 \\ 6 \end{pmatrix}$ B) $\begin{pmatrix} -5 \\ 6 \end{pmatrix}$ C) $\begin{pmatrix} 6 \\ 5 \end{pmatrix}$ D) $\begin{pmatrix} 5 \\ -6 \end{pmatrix}$

20 x 2 marks = **40 marks**

This section contains twenty (20) questions (from 21 to 40).
Answer ALL questions.

21	Find the value of: $(7 - 3) \times (5 + 4)$
	A) -4 B) 24 C) 36 D) -1
22	Use your calculator to work out the value of: $\dfrac{83 + 17}{25 \times 40}$
	A) 0.1 B) 110.2 C) 3.745 D) 160
23	Round 7.518 to two decimal places.
	A) 7.58 B) 7.51 C) 7.52 D) 7.50
24	Complete the sequence:
	$\dfrac{3}{4}$, $1\dfrac{1}{2}$, ____ , ____ , 12, 24
	A) $2\dfrac{1}{4}$, 3 B) 2, $2\dfrac{1}{4}$ C) $2\dfrac{3}{4}$, $3\dfrac{1}{2}$ D) 3, 6
25	A set of four bowling balls have the following diameters:
	21.59 cm, 21.64 cm, 21.72 cm, 21.83 cm
	What is the median diameter for this set of bowling balls?
	A) 21.695 cm B) 21.68 cm C) 21.70 cm D) 0.24 cm
26	One of the angles of a parallelogram is 80°. Work out the values of two other angles of the parallelogram.
	A) 80° and 100° B) 10° and 100° C) 10° and 80° D) 80° and 120°
27	Convert 45% to a fraction in its simplest form.
	A) $\dfrac{5}{9}$ B) $\dfrac{9}{50}$ C) $\dfrac{9}{20}$ D) $\dfrac{3}{20}$
28	A training course starts at 08:45 and finishes 4 hours and 25 minutes later. At what time does the training course finish?
	A) 1:10 pm B) 13:00 C) 01:10 D) 12:20

29	What is the reading on this scale?
	A) 2.6 kilogram
	B) 260 grams
	C) 230 grams
	D) 206 grams
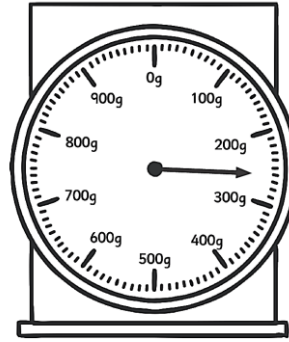
30	A printing machine prints 4800 pages per minute. How many pages does it print in 15 seconds?
	A) 2400 B) 19 200 C) 72 000 D) 1200

31	To provide good service, the ratio of waiters to diners at a restaurant must be 3 : 40. The restaurant is hosting an event for 100 diners. What is the least number of waiters that must be employed to ensure good service at this event?
	A) 9 B) 6 C) 13 D) 8

32	Given that 360 Canadian Dollars (CAD) are equivalent to 250 euro (EUR), calculate the exchange rate for Canadian dollars to Euro:
	1 EUR = _____CAD
	A) 1.20 B) 1.44 C) 0.69 D) 0.70

33	The equation of a line is given by $y = 3x - 2$. Which one of the following coordinates lies on the line?
	A) (−1, −1) B) (1, 1) C) (2, 8) D) (0, 1)

34	John is facing East. He turns clockwise so that he now faces North-West. What fraction of a turn has John turned through?
	A) $\frac{1}{8}$ turn B) $\frac{5}{8}$ turn C) $\frac{3}{8}$ turn D) $\frac{1}{4}$ turn

| 35	Work out: $\frac{49}{8} \div \frac{28}{24}$
	A) $5\frac{1}{4}$ B) $7\frac{7}{48}$ C) 7 D) $10\frac{1}{2}$

36 A box contains 30 keys. Five keys open rooms on Floor 1.
Three keys open rooms on Floor 2. The rest open rooms on Floor 3.
Which statement describes the probability that a key picked at random
opens a room on Floor 3?

A) Unlikely   B) Evens   C) Very likely   D) Impossible

37 Shape A is rotated about point P to form Shape B.
Shape A has been rotated by:

A) 90° clockwise

B) 90° anticlockwise

C) 180°

D) 270° anticlockwise
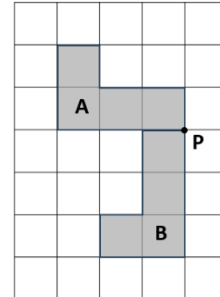
38 Expand and simplify: $3(x - 4) + 2(x + 1)$

A) $5x - 10$ B) $x - 14$ C) $5x - 14$ D) $3x - 2$

39 Michael's salary is x euro. He receives 13 salaries in a year, once every
4 weeks. He also receives an allowance of y euro per week.
How much does Michael receive in total in one year in terms of x and y?

A) $13(x + y)$ B) $12(x + 4y)$ C) $13(x + 4y)$ D) $x + 4y$

40 One cuboid is placed on top of another cuboid as shown below.
Find the value of x, y and z in the given diagram.

4.5 cm x z

4.3 cm y 2.5 cm   3.2 cm   3.7 cm

8.2 cm
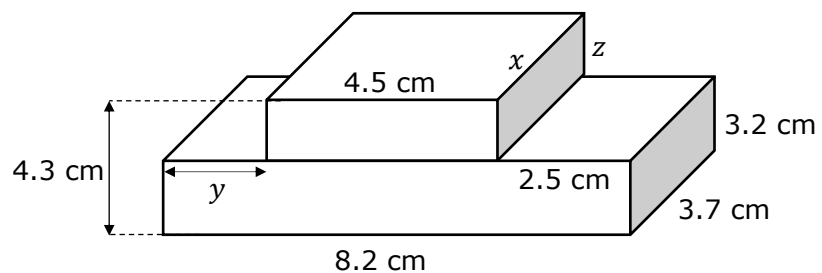
A) $x = 3.7$ cm, $y = 2.5$ cm, $z = 1.1$ cm

B) $x = 2.5$ cm, $y = 1.2$ cm, $z = 3.2$ cm

C) $x = 4.5$ cm, $y = 2.2$ cm, $z = 3.2$ cm

D) $x = 3.7$ cm, $y = 1.2$ cm, $z = 1.1$ cm

20 x 2 marks = **40 marks**

Section C

This section contains ten (10) questions (from 41 to 50).
Answer ALL questions.

|	
41	Work out: $\sqrt[3]{64} + 3^2$

A) 13   B) 17   C) 10   D) 16

42   A train travels 261 km in 1.5 hours. How much does the train travel in 2.5 hours, if its speed remains constant throughout the whole journey?

A) 156.6 km   B) 391 km   C) 435 km   D) 522 km

43   This table shows the number of plates hit by a group of friends in a shooting exercise.

25 friends hit 20 plates or more.

What is the missing number in the table?

Number of plates hit	Frequency
0 – 9	8
10 – 19	5
20 – 29	4
30 – 39	7
40 – 49	

A) 1   B) 9   C) 14   D) 25

44   The diagram shows a square **S** and a rectangle **R**.
M is the mid-point of a side of the square.

Calculate the area of rectangle R.

3.2 cm   **R**

M   4.8 cm

6.4 cm   **S**

A) 35.84 cm²   B) 25.60 cm²   C) 15.36 cm²   D) 66.56 cm²

45   Find the value of $3(10 - a) + 7b - 12c$ when $a = 2$, $b = 3.7$ and $c = \dfrac{1}{3}$.

A) 19.4   B) 45.9   C) 10   D) 107.7

46 Kelsey walks from Luqa to Xemxija, stopping for a break on her way.
The graph shows her journey. How much time did she spend walking?
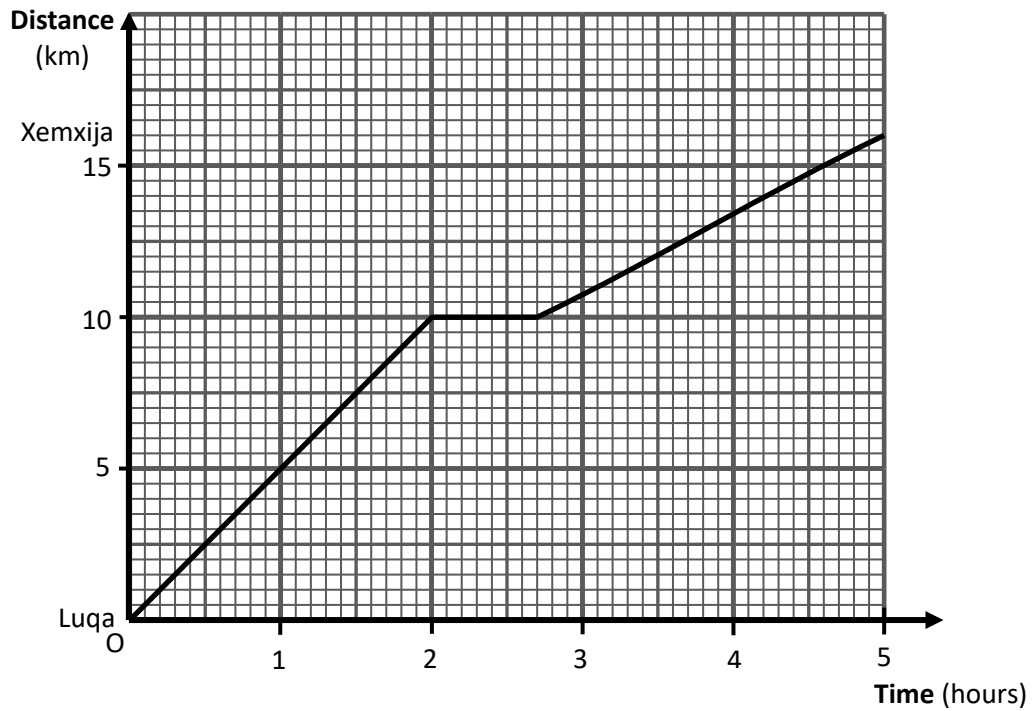
A) 4 hr 30 mins   B) 5 hr   C) 42 mins   D) 4 hr 18 mins

47 The cube and the cuboid below have the same volume.
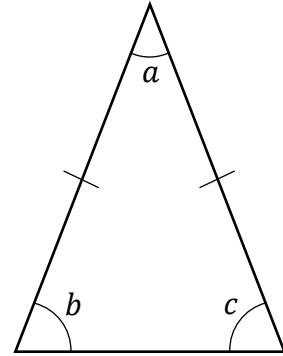What is the depth of the cuboid?

6 cm
6 cm
6 cm

9 cm
12 cm
depth
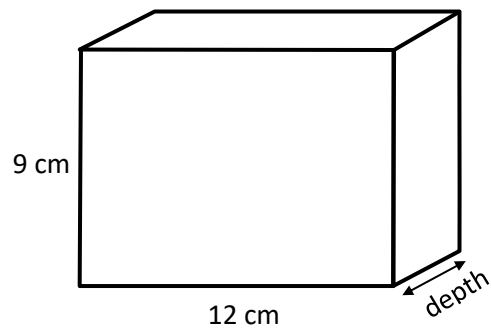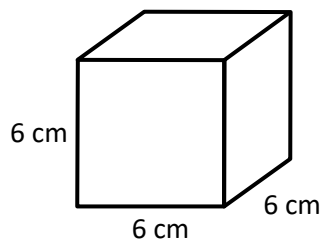
A) 1 cm   B) 1.5 cm   C) 2 cm   D) 2.5 cm

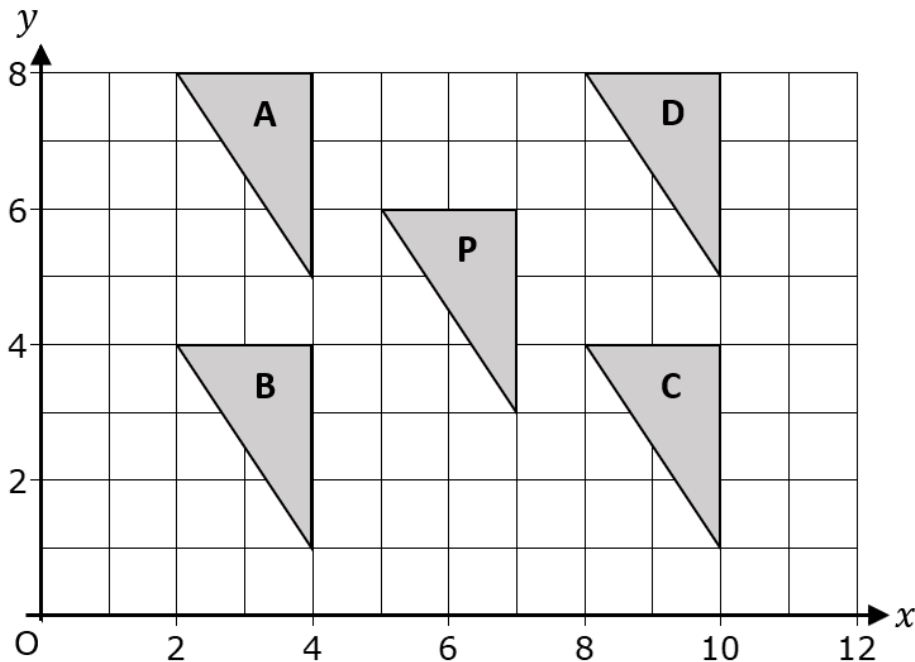|	
48	A group of soldiers patrol an area of 7.5 km². The area to be patrolled is now increased by 4%. What is the area they patrol now? A) 7.8 km² B) 11.5 km² C) 0.3 km² D) 7.9 km²

49 Angles a, b and c are in the ratio $a : b : c = 1 : 2 : 2$.
What is the value of angle c ?

A) 2° B) 36° C) 70° D) 72°

50 Which shape is the translation of shape P using the vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$?

A) Shape A B) Shape B C) Shape C D) Shape D

10 x 2 marks = **20 marks**

TOTAL: 100 MARKS

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