Index No _____

GOVERNMENT OF MALTA
MINISTRY FOR EDUCATION, SPORT, YOUTH
RESEARCH AND INNOVATION
DEPARTMENT OF EXAMINATIONS

Candidate's name must NOT be written on any sheet of the examination paper and booklet.
Index Number must be written once ONLY above the perforation.

Qualifying Examination for Supply Learning Support Educators

February 2025

Subject: **Mathematics**

Date: **26th February 2025**

Time: **9:00am – 10:30am (One hour and thirty minutes)**

Instructions to candidates:

- Answer ALL questions.
- Write your answers in the space available on the examination paper.
- Show clearly all the necessary steps, explanations, and construction lines in your working.
- Unless otherwise stated, diagrams are drawn to scale.
- The use of non-programmable scientific calculators with statistical functions and of mathematical instruments is allowed.
- Candidates are allowed to use transparencies for drawing transformations.
- This paper carries a total of 100 marks.

Question No.	1	2	3	4	5	6	7	8
Mark								

Question No.	9	10	11	12	13	14	15	16	Total
Mark									

1. (a) Write the following numbers in order, starting from the smallest.

20.3 , 2.03 , 2.3 , 2.33 , 2.23

_____ , _____ , _____ , _____ , _____

(b) Write 240 as a product of prime factors. Give your answer in index form.

Ans: _____

(c) Fill in to complete the equation:

(i) $-45 \div \square = 9$

(ii) $\frac{3}{4} \times \square = \frac{9}{8}$

(7 marks)

2. Last week, Sweet Delights Confectionery sold the following number of cream cakes:

Day	Tue	Wed	Thu	Fri	Sat	Sun
Number of cream cakes	33	28	42	36	44	57

(a) Work out the mean number of cream cakes sold over these six days.

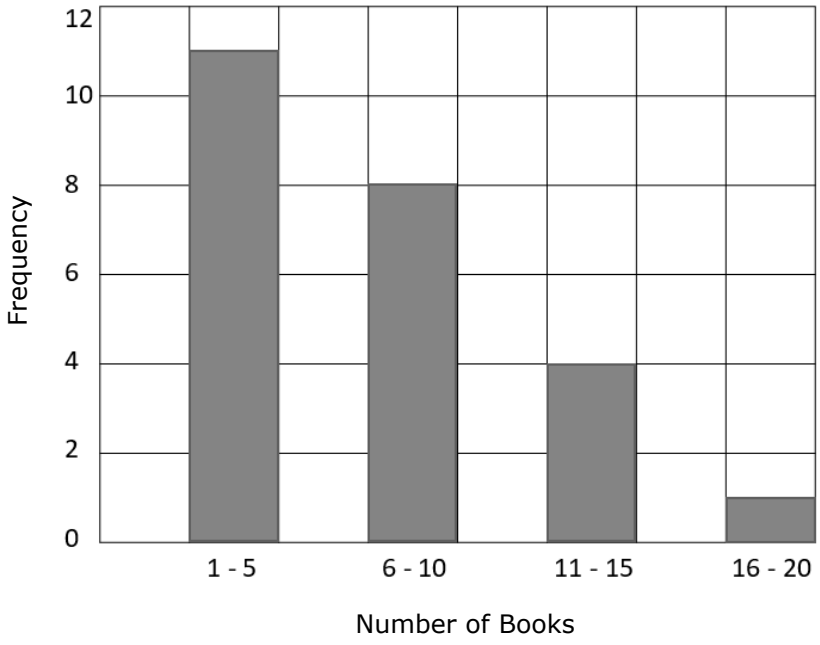
Ans: _____

(b) How many more cream cakes must the confectionery sell over six days to increase the average number of cream cakes sold to 42?

Ans: _____

(4 marks)

3. The bar chart below shows the number of books bought by 24 students.



(a) Fill in the frequency table below to show the information in the bar chart.

Number of Books	1 - 5	6 - 10	11 - 15	16 - 20
Frequency				

(b) Work out as a percentage the number of students who bought more than ten books. Give your answer correct to one decimal place.

Ans: _____

(4 marks)

4. (a) Express the ratio 5.2 : 12 : 10.8 in its simplest form.

Ans: _____

(b) Write 10 cm : 1 km as a ratio in the form $1 : n$.

Ans: _____

(c) Auntie Lola shares €12 000 amongst her three nieces in the ratio 12 : 13 : 15. How much does each niece receive?

Ans: _____, _____, _____

(8 marks)

5. The nth term of a sequence is $4n + 3$.

(a) Write the first three terms of the sequence.

Ans: _____, _____, _____

(b) Explain why 25 is not a term of this sequence.

(4 marks)

6. (a) Expand and simplify: $9(x + 8) + 4x(3 - x)$

Ans: _____

(b) Factorise completely: $30x + 15xy$

Ans: _____

(c) Solve the equation: $8x - 17 = 6x + 23$

Ans: _____

(8 marks)

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7. A bag contains 8 red balls, 5 blue balls and 2 green balls. A ball is picked at random from the bag.

What is the probability that the ball picked:

(a) is red?

Ans: _____

(b) is not blue?

Ans: _____

(c) is white?

Ans: _____

(3 marks)

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8. A bonus of €17 100 is shared amongst 12 persons who work in a company.

30% of the bonus is shared equally amongst three managers and the rest of the bonus is shared equally amongst the remaining employees.

(a) How much does each manager and each employee get?

Ans: Manager:_____ Employee:_____

(b) A manager gets 20% more than an employee.
Do you agree? Show your working.

(7 marks)

9. Use the functions $f(x) = 20 + 11x$ and $g(x) = 2x - 19$ to answer the questions below.

(a) Work out the value of $f(-2)$.

Ans: _____

(b) If $g(x) = 0$, calculate the values of x.

Ans: _____

(4 marks)

10. (a) Make a the subject of the formula: $v^2 = u^2 + 2as$

Ans: _____

(b) Margaret buys four mugs and six plates for €67.
Claire buys five mugs and seven plates for €80.

(i) Let m represent the cost of a mug in euro and let p represent the cost of a plate in euro.
Write down two equations to show the above information.

Ans: _____; _____

(ii) Solve your equations simultaneously to find the cost of one mug and the cost of one plate.

Ans: m = _____; p = _____

(7 marks)

11. (a) Using ruler and compasses only construct triangle XYZ such that YZ = 10 cm, $X\hat{Y}Z = 60^\circ$ and XY = 5 cm. Point Y has been marked below.

Y

(b) Measure angle $Y\hat{X}Z$.

Ans: _____

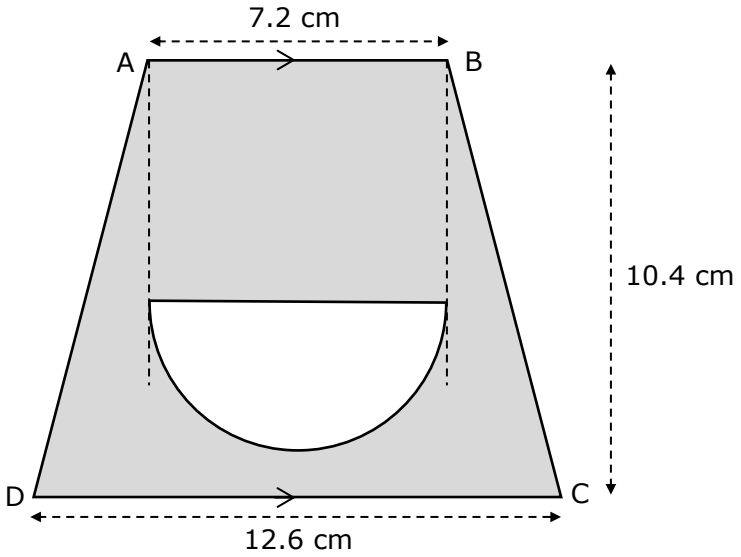
(c) Take the necessary measurements and work out the area of triangle XYZ.

Ans: _____

(7 marks)

12. The diagram shows the cross-section of a prism which consists of a trapezium ABCD with a semicircular hole.

Diagram not drawn to scale



(a) Work out the area of the cross-section, shown shaded in the diagram above.
Give your answer correct to one decimal place.

Ans: _____

(b) The prism is 0.6 cm thick.
Calculate the volume of the prism correct to one decimal place.

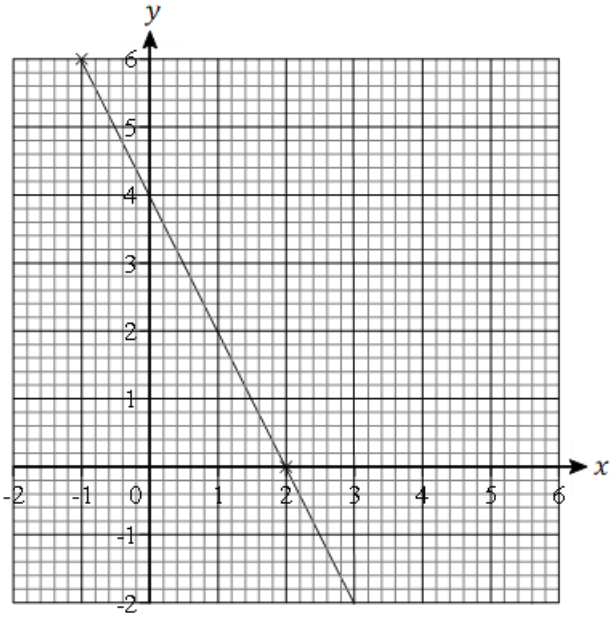
Ans: _____

(6 marks)

13. The diagram below shows a straight-line graph.

(a) What is the y-intercept of the straight line?

Ans: _____



(b) Work out its gradient.

Ans: _____

(c) Which one of the three equations below is the equation of the straight-line shown on the grid?

A. $y = 2x + 4$ **B.** $y = 2 - 4x$ **C.** $y = 4 - 2x$

Ans: _____

(d) Fill in the table for the equation $y = 0.5x - 1$.

x	-2	1	6
y			

(e) (i) Plot the graph of $y = 0.5x - 1$ on the graph above.

(ii) What are the co-ordinates of the point of intersection of the two graphs?

Ans: _____

(10 marks)

14. The diagram shows the position of three towns R, S and T.

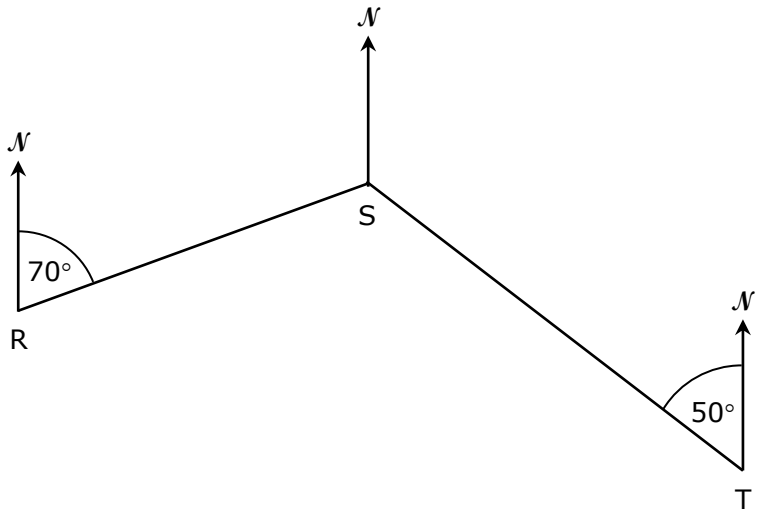


Diagram not drawn to scale

Complete the following statements with three figure bearings:

(a) The bearing of S from R is _____.

(b) The bearing of R from S is _____.

(c) The bearing of S from T is _____.

(5 marks)

15. The diagram shows a bridge AD.
AG = 42 m, BC = 50 m, CD = 22 m and CE = 28 m. Angle $A\hat{G}B = 35°$.

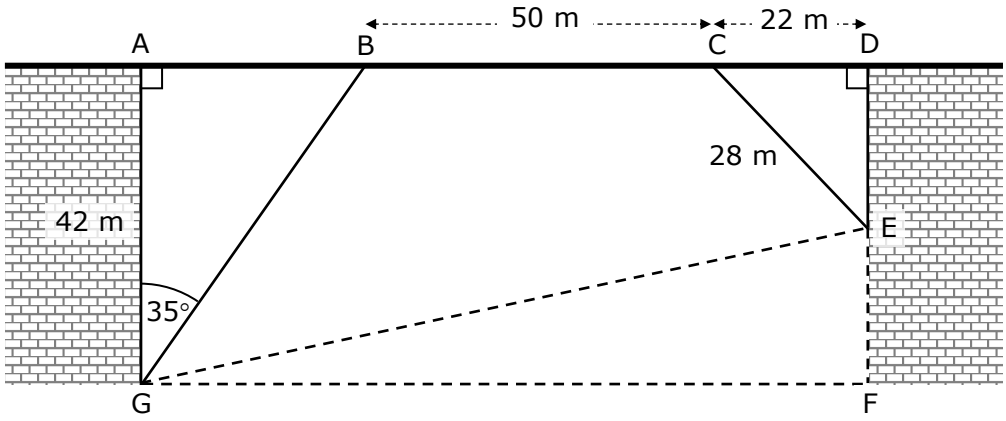


Diagram not drawn to scale

In the following, give your answer correct to one decimal place.

(a) Calculate the length of AB.

Ans: _____

(b) Work out the length of DE.

Ans: _____

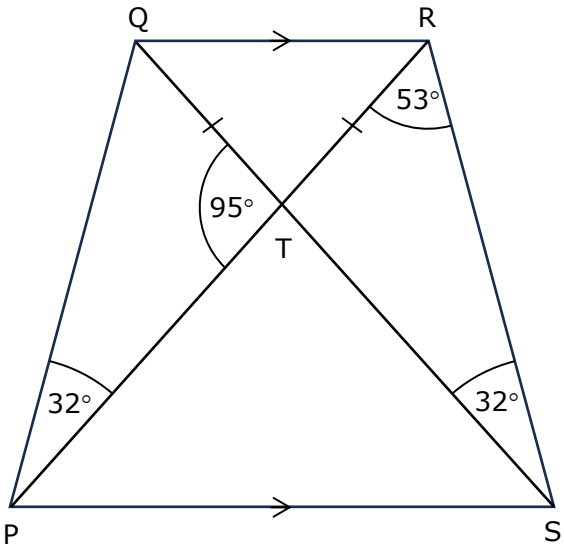
(c) Calculate the angle of elevation of E from G.

Ans: _____

(9 marks)

16. In the diagram below, the diagonals of trapezium PQRS intersect at T and QT = RT.

Diagram not drawn to scale



(a) Work out the size of angle PQT.

Ans: _____

(b) Prove that triangle PQT is congruent to triangle SRT.

(c) What type of triangle is triangle PTS? Explain.

Ans: _____

_____

(7 marks)

End of Paper

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