සියලුම හිමිකම් ඇවිරිණි / முழுப் பதிப்புரிமையுடையது /All Rights Reserved]

ශ්‍රී ලංකා විභාග දෙපාර්තමේන්තුව
இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

32 E I

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2025(2026)
கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2025(2026)
General Certificate of Education (Ord. Level) Examination, 2025(2026)

ගණිතය	I
கணிதம்	I
Mathematics	**I**

පැය දෙකයි
இரண்டு மணித்தியாலம்
Two hours

Index Number: .....

Certified Correct

.....
Signature of Invigilator

Important:

- ❊ This question paper consists of **8** pages.
- ❊ Write your **Index Number** correctly in the appropriate places on **this page** and on **page three**.
- ❊ Answer **all** questions **on this question paper itself**.
- ❊ Use **only** the space provided under each question for working and writing the answer.
- ❊ Indicate the **relevant steps** and the **correct units** when answering the questions.
- ❊ Marks are awarded as follows:

  In Part A
  2 marks for each question

  In Part B
  10 marks for each question

- ❊ Blank papers can be obtained for scratch work.

For Marking Examiners' Use Only		
Part	**Question Numbers**	**Marks**
A	**1 – 25**	
B	**1**	
	2	
	3	
	4	
	5	
Total		

..... First Examiner	..... Code Number
..... Second Examiner	..... Code Number
..... Arithmetic Checker	..... Code Number
..... Chief Examiner	..... Code Number

[*see page two*

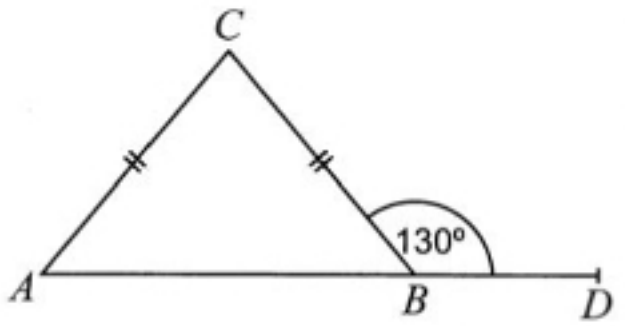
Part A

Answer ***all*** *questions* ***on this question paper itself.***

(Take the value of π as $\frac{22}{7}$.)

1. The initial value of an imported item is 60 000 rupees. Customs duty of 14% is charged on it. What is the value of the item after the customs duty is paid?

2. In the given figure, ABC is an isosceles triangle. The side AB is produced to D. Find the magnitude of $A\hat{C}B$ using the given information.

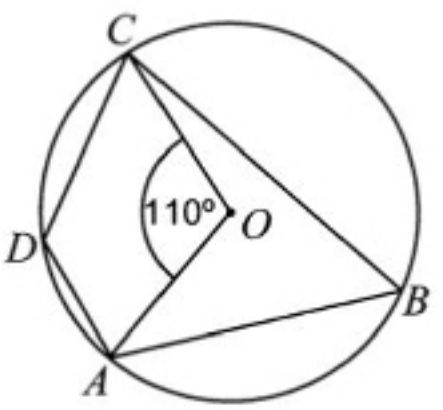


3. Solve: $\frac{4}{x}-\frac{5}{2x}=\frac{1}{8}$

4. Find the first approximation of $\sqrt{30}$ (Hint : $(5.4)^2 = 29.16$).

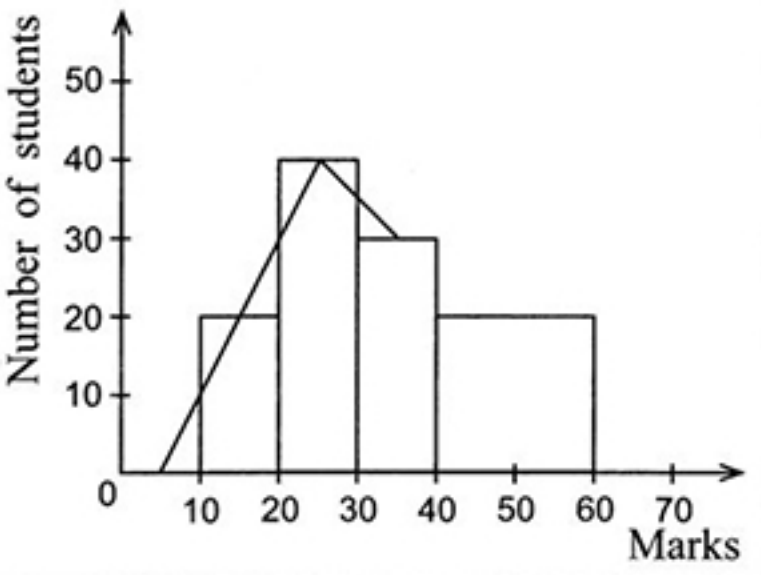
5. The rate at which water flows through a pipe fixed to an empty tank is 28 litres per minute. If the capacity of the tank is 112 litres, how many minutes will it take to fill the tank completely?

6. In the given figure, A, B, C and D are four points on the circle with centre O. Find the magnitude of $A\hat{D}C$ using the given information.



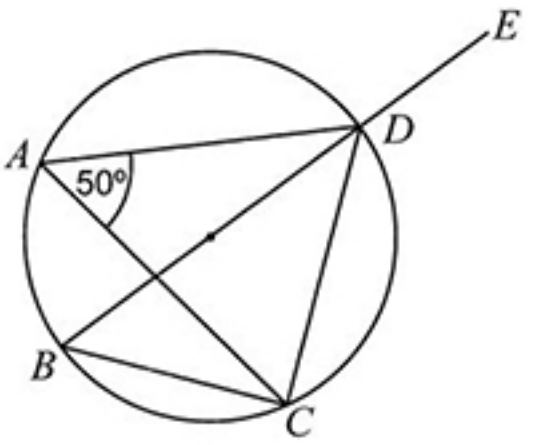
[see page three

7. A histogram and an incomplete frequency polygon drawn based on the marks obtained by a group of students for a test are shown here. Complete the frequency polygon.



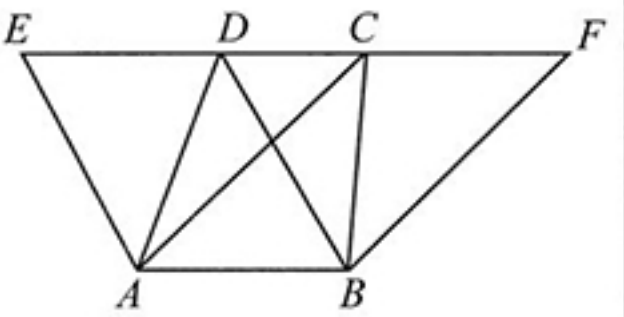
8. Find the least common multiple of the following algebraic terms.
$3x$, $6xy$, $4x^2y$

9. In the circle given in the figure, the diameter BD is produced to E. Find the magnitude of $C\hat{D}E$ using the given information.



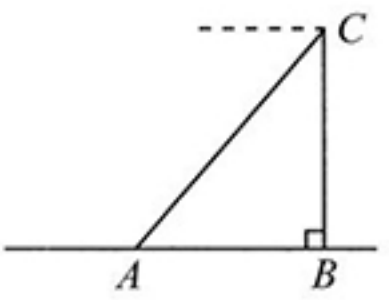
10. If lg 243 = 2.3856, find the value of $10^{0.3856}$.

11. In the given figure, $ABDE$ and $ABFC$ are two parallelograms. Moreover, the points E, D, C and F lie on a straight line. Name **three** triangles that have the same area as the triangle BFC.



12. Anula, who is at point A of a level ground, sees Kamal who is at point C of a vertical building BC on the same ground, with an angle of elevation of 50°. Accordingly, select the correct statement and underline it.

(i) $\tan 50^\circ = \frac{AB}{BC}$ (ii) $\cos 50^\circ = \frac{BC}{AB}$ (iii) $\sin 50^\circ = \frac{BC}{AC}$

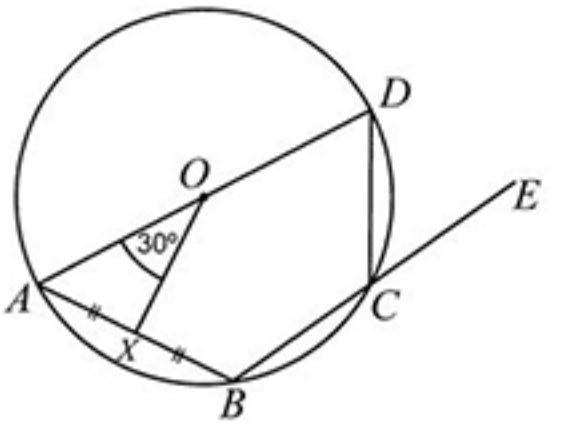


[see page four

13. One factor of the expression $2x^2 + 5x - 3$ is $(x + 3)$. Find the other factor.

14. Find the probability of the sum of the two digits appearing face up being 4, when two fair cubic dice with their faces numbered from 1 to 6 are rolled.

15. In the given figure, A, B, C and D are four points on the circle with centre O. Moreover, AD is a diameter and, the chord AB is bisected by OX. Find the magnitude of $D\hat{C}E$ using the given information.

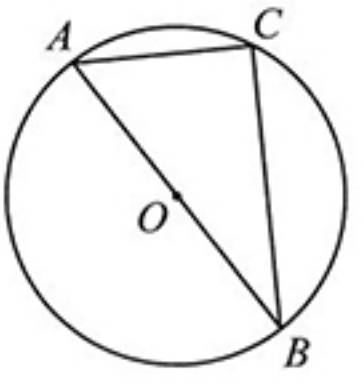


16. The height of a right circular cylinder is twice its base radius, and its volume is 2156 cm^3. Find the base radius of this cylinder. (The volume of a right circular cylinder of base radius r and height h is $\pi r^2 h$.)

17. The number of ants in a container of sugar triples every 5 minutes. If there are 36 ants in the container in 10 minutes, find the number of ants in the container initially.

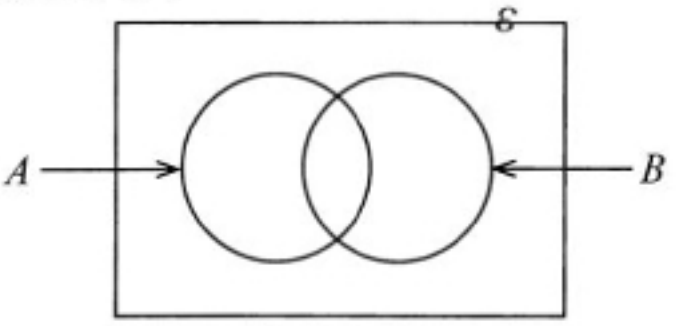
18. If $\begin{pmatrix} 0 & -2 \\ x & 1 \end{pmatrix}\begin{pmatrix} 2 & 1 \\ 0 & -1 \end{pmatrix} = \begin{pmatrix} 0 & y \\ 6 & 2 \end{pmatrix}$, find x and y separately.

19. The centre of the circle given in the figure is O, AB is a diameter, and the radius is 5 cm. If $AC = 6$ cm, find the length of BC using the given information.

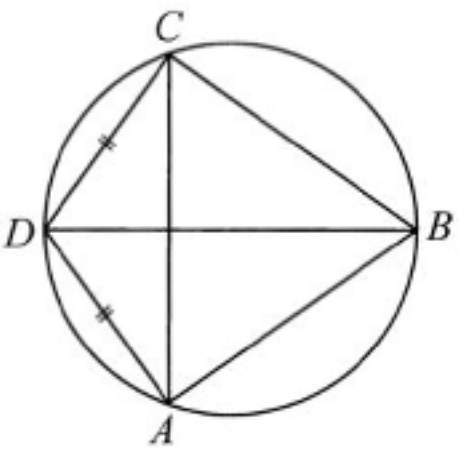


[see page five

20. In the given Venn diagram, shade the region that represents $A \cup B'$.



21. In the given figure, $ABCD$ is a cyclic quadrilateral. Moreover, $AD = DC$, and $A\hat{B}C = 70°$. Find the magnitude of $D\hat{B}C$ using the given information.



22. Find the positive integral solutions which are less than 5, of the inequality $3x + 10 \geq 18$.

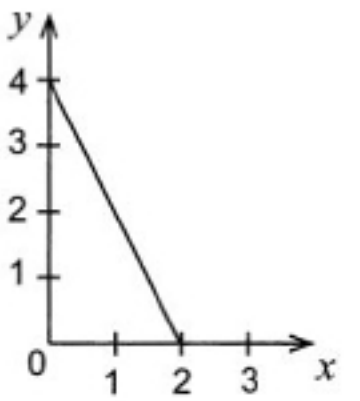
23. Underline the correct statement from among the statements given below regarding the three rectangular faces of a right prism with an equilateral triangular cross section.

(i) Exactly two faces are equal in area.

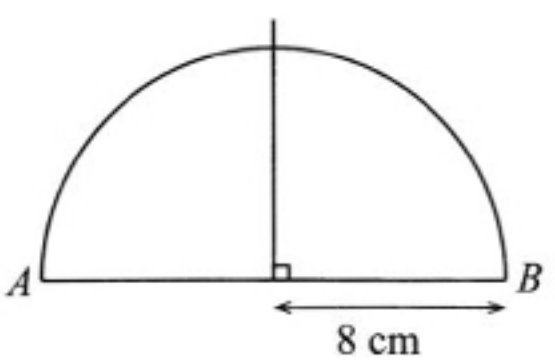
(ii) All three faces are equal in area.

(iii) All three faces are unequal in area.

24. Write the equation of the straight line represented by the graph in the figure.



25. An incomplete sketch relevant to obtaining the chord CD which lies at a distance of 5 cm from the diameter AB of a semicircle is shown in the figure.
Complete the sketch showing the construction lines, to represent how the chord CD is obtained using the knowledge on loci.



50

[see page six

* *

Part B

Answer ***all questions on this question paper itself.***

1. Mahendra has estimated that 120 000 rupees is required to engage 8 daily wage workers for 5 days to renovate his house, and that 60 000 rupees is required to buy the building material. He borrowed this whole amount at an annual simple interest rate of 18%.

(i) How much is the daily wage paid to a worker?

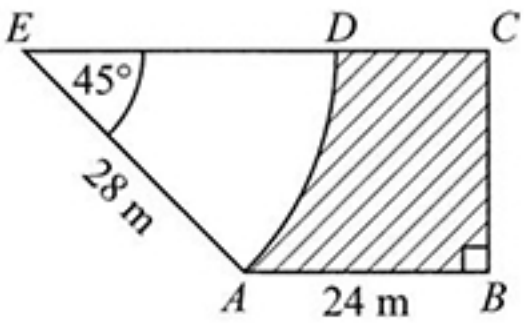
(ii) Find the total amount that Mahendra has to pay back to settle the loan in exactly 6 months.

(iii) When the renovations commenced, if the wages had increased by 12% and the cost of the building material by 15%, express the additional amount required for the renovation as a percentage of the estimated amount.

(iv) The urban council to which Mahendra's house belongs charges 16% of the annual assessed value of the house as rates for the year. Mahendra pays 800 rupees as rates for a quarter. How much is the annual assessed value of Mahendra's house?

10

2. As shown in the figure, in a vegetable bed in the shape of a trapezium, chillies are grown in a portion in the shape of a sector of a circle of central angle 45°, and tomatoes are grown in the remaining portion which is shaded. $AE = 28$ m.
(Take the value of π as $\frac{22}{7}$.)



(i) Find the length of the fence that should be fixed along the arc AD to separate out the portion in which chillies are grown.

(ii) Find the area of the portion in which chillies are grown.

(iii) $AB = 24$ m. By taking $BC = 20$ m and $CE = 44$ m, find the area of the portion in which tomatoes are grown.

(iv) It is required to add to this bed, a rectangular plot of land with AB as one side, lying outside the bed, of area equal to the area of the portion in which tomatoes are grown. Draw a sketch of this plot of land with its measurements, on the given figure.

10

[*see page seven*

3. A and B are two containers of the same capacity. $\frac{5}{7}$ of container A is filled with water while container B is empty.

(i) When $\frac{3}{5}$ of the quantity of water in container A is poured into container B, what fraction of the capacity of container B is the quantity of water in it?

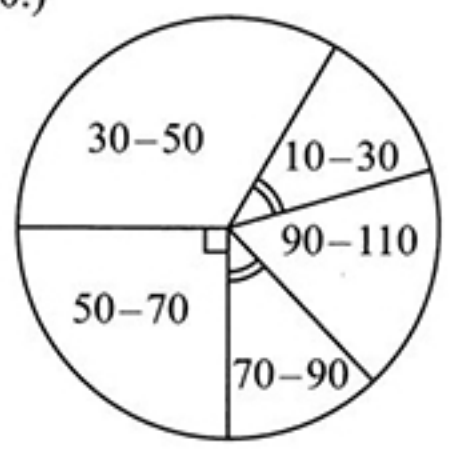
(ii) Now, to fill the container B completely, another 600 millilitres of water is required. What is the capacity of container B?

(iii) What fraction of the capacity of container A is the quantity of water remaining in it now?

(iv) To make the volume of water in the two containers equal, how many millilitres of water should be poured from the completely filled container B into container A?

10

4. An incomplete pie chart drawn using the time (in minutes) spent per day on exercises by 48 people and an incomplete frequency table containing a portion of the information used to draw this pie chart is shown below. (In the table, the interval 10 – 30 denotes 10 or greater and less than 30.)



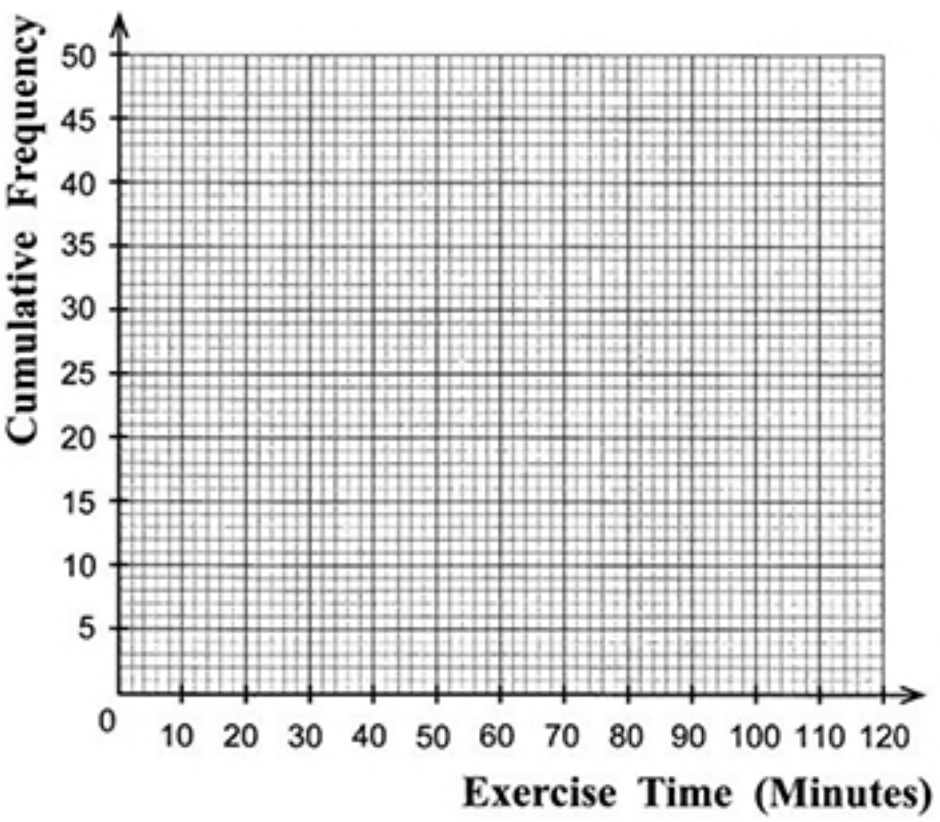
Exercise Time (Minutes)	Frequency (Number of People)	Cumulative Frequency
10 – 30	6	6
30 – 50	16	.....
50 – 70	.....	.....
70 – 90	.....	.....
90 – 110	.....	48

(i) Fill in the blanks in the table in the frequency column, using the given information.

(ii) Complete the cumulative frequency column of the table and using it draw the cumulative frequency curve on the given coordinate plane.

(iii) Using the cumulative frequency curve, find the number of people who spend less than 80 minutes per day on exercises.

(iv) It is required to separate out the 25% who exercise the least from these 48 people. To do this, the selection should be of those who exercise for less than how many minutes per day?



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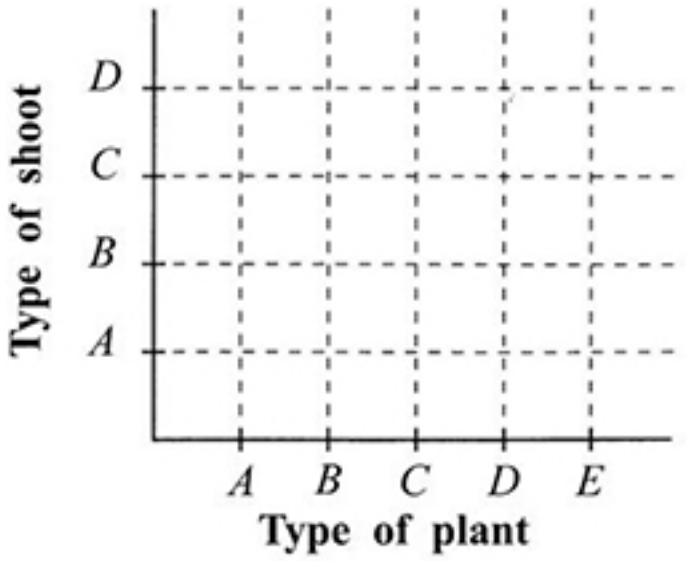
[see page eight

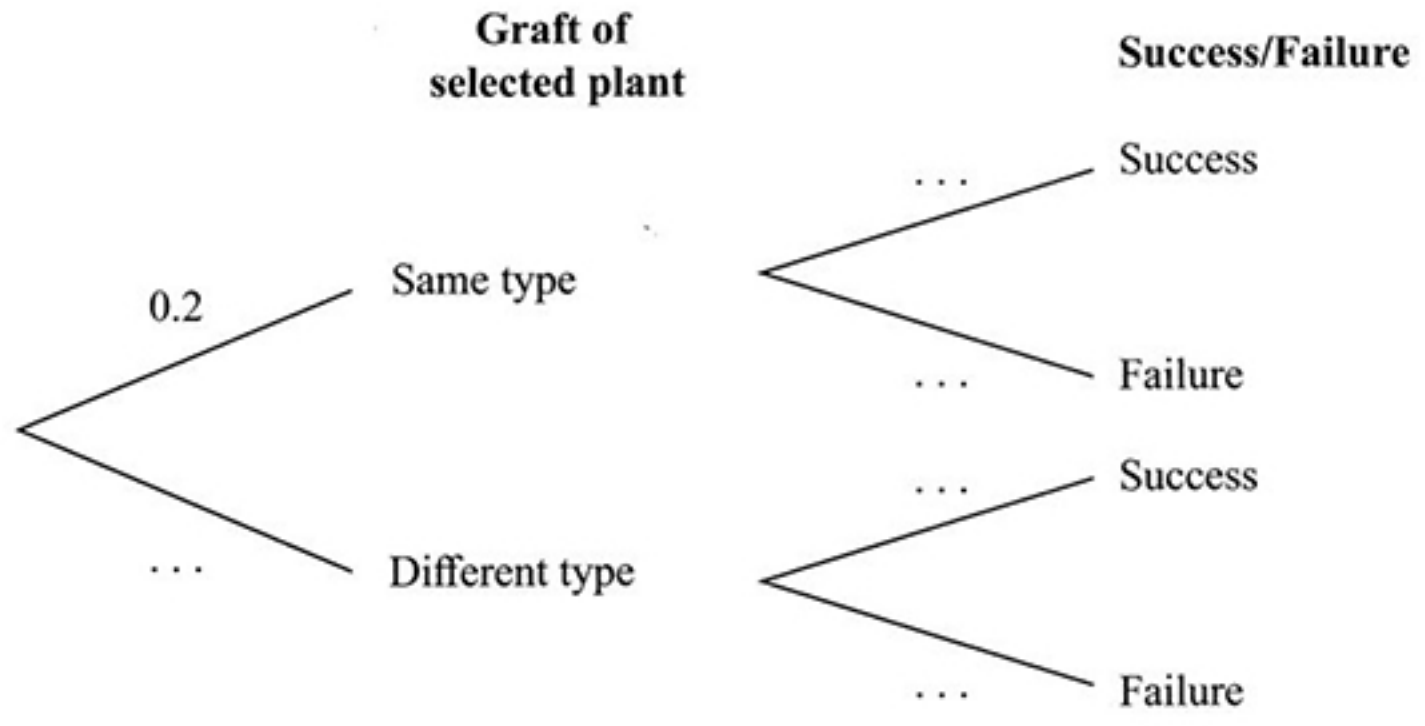
5. (i) A, B, C, D and E are five types of mangoes. To four plants taken from type A, four shoots of the types A, B, C and D are grafted such that each plant has exactly one shoot grafted to it. In this manner, shoots of the types A, B, C and D are grafted by taking four plants each of the types B, C, D and E too.



(a) Represent the sample space of the outcomes of this activity on the given grid using the symbol 'X'.

(b) Encircle the event of a plant picked at random from the grafted plants being a plant with a grafted shoot of the same type as the plant (same type grafting) and find the probability of that event occurring.

(ii) It is given that the probability of a plant picked at random from a collection of grafted fruit plants in a plant nursery, being a plant of same type grafting is 0.2, the probability of a same type grafted plant being a success is 0.8 and the probability of a different type grafted plant being a success is 0.6.



(a) Fill in the blanks in the tree diagram using the above information.

(b) Calculate the probability of a grafted plant picked at random from this plant nursery being a success.

10

* * *

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இலங்கைப் பரீட்சைத் திணைக்களம்
Department of Examinations, Sri Lanka

32 | E | II

අධ්‍යයන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2025(2026)
கல்விப் பொதுத் தராதரப் பத்திர (சாதாரண தர)ப் பரீட்சை, 2025(2026)
General Certificate of Education (Ord. Level) Examination, 2025(2026)

ගණිතය	II
கணிதம்	II
Mathematics	**II**

පැය තුනයි
மூன்று மணித்தியாலம்
Three hours

අමතර කියවීම් කාලය	-	මිනිත්තු 10 යි
மேலதிக வாசிப்பு நேரம்	-	10 நிமிடங்கள்
Additional Reading Time	-	**10 minutes**

Use additional reading time to go through the question paper, select the questions and decide on the questions that you give priority to in answering.

Instructions:

* *Answer **ten** questions selecting **five** questions from* **Part A** *and **five** questions from* **Part B**.
* *Write the **relevant steps** and the **correct units** in answering the questions.*
* *Each question carries* **10** *marks.*
* *The volume of a right prism of cross sectional area A and height h is Ah.*
* *The volume of a sphere of radius r is $\frac{4}{3}\pi r^3$.*

Part A

*Answer **five** questions only.*

1.

A bank pays an annual compound interest rate of 15% for deposits. The interest is added to the deposit amount annually.	A share of a finance company can be bought for 60 rupees.

(i) Amal deposits 60 000 rupees in a bank account for two years. How much is the interest he receives for the first year?

(ii) Find the total amount in Amal's bank account at the end of the two years.

(iii) A year after Amal deposits the money in the bank, Ramani buys shares of the finance company for 60 000 rupees. How many shares does she buy?

(iv) At the end of that year, Ramani receives the dividends for the year and sells all the shares she owns at 75.35 rupees per share. If the total amount Ramani has in hand now is equal to the total amount in Amal's bank account after 2 years, find the dividend amount the finance company has paid per share.

2. A table of y-values corresponding to several integral x-values of the quadratic function $y = (x+1)(x-3)$ in the interval $-2 \leq x \leq 4$ is given below.

x	–2	–1	0	1	2	3	4
y	5	0	–3	–4	–3	0	5

(i) Using the standard system of xy-axes and selecting a suitable scale, draw the graph of the quadratic function on the given graph paper, based on the above given table.

(ii) Draw the axis of symmetry of the graph on the graph itself.

(iii) Write the coordinates of the minimum point of the graph and thereby express the quadratic function in the form $y = (x-a)^2 - b$.

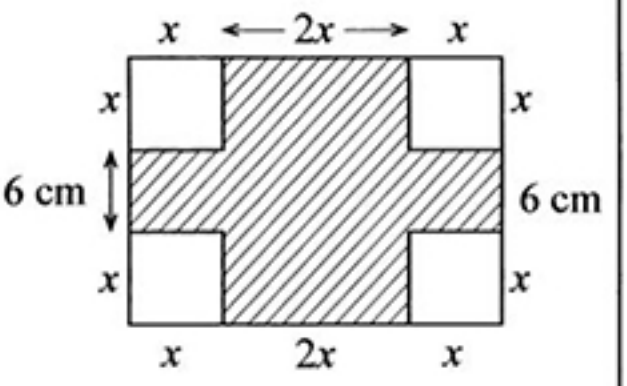
(iv) Using the graph you drew,

(a) find the coordinates of the turning point of the graph of the quadratic function $y = -(x+1)(x-3)$.

(b) write separately the coordinates of the intersection points of the graph of the quadratic function $y = -(x+1)(x-3)$ and the graph you drew.

[*see page two*

3. In the rectangle shown in the figure, the four unshaded parts are four squares of side length x cm each. The shaded area is 316 cm^2.

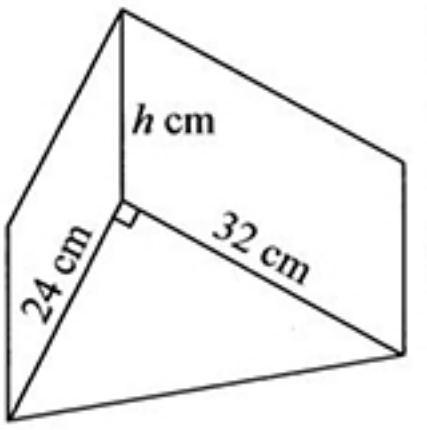


(i) Show that $x^2 + 6x - 79 = 0$.

(ii) Find the value of x to the nearest first decimal place. (Take that $\sqrt{22} = 4.69$.)

(iii) Find the perimeter of the shaded region.

4. The height of a right prism shaped metal block with a right triangular cross section having the measurements shown in the figure, is h cm. This metal block is melted and 12 identical solid spheres are made without wastage of metal. If the radius of a sphere is r cm, show that the height of the prism is given by $h = \frac{\pi r^3}{24}$.



If the value of r is 4.32, take that $\pi = 3.14$ and find the value of h to the nearest first decimal place using the logarithms table.

5. A vendor sells brown eggs and white eggs. On a certain day, twice the number of brown eggs he sold was equal to the number that is obtained when 10 is added to the number of white eggs he sold. The amount he received that day by selling a brown egg at 40 rupees and a white egg at 32 rupees was 4880 rupees.

(i) Taking the number of brown eggs that the vendor sold that day as x and the number of white eggs he sold as y, construct a pair of simultaneous equations and by solving them, find separately the number of brown eggs and the number of white eggs that were sold that day.

(ii) Sumana who comes to the shop that day buys eggs for 1000 rupees without balance. The number of white eggs she buys is more than twice the number of brown eggs she buys. If Sumana buys the maximum number of brown eggs that she can buy under these conditions, find separately the number of brown eggs she buys and the number of white eggs she buys.

6. A frequency distribution containing information on the time spent on self-study per day by a group of 70 students in Grade 11 is given below.

Time (Minutes)	40 – 60	60 – 80	80 – 100	100 – 120	120 – 140	140 – 160	160 – 180
Frequency (Number of Students)	8	12	15	15	10	7	3

Here, the interval 40 – 60 denotes greater than 40 and less than or equal to 60.

(i) How many students are engaged in self-study for two hours or less per day?

(ii) Find the mean time that a student in this group engages in self-study per day, to the nearest minute.

(iii) Show that the time that can be expected to be spent by a student in this group on self-study during a week exceeds 11 hours.

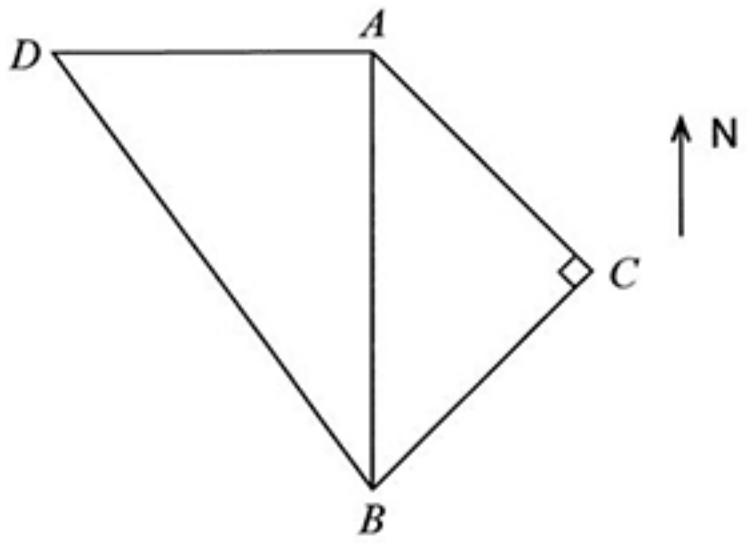
(iv) The students who spend two hours or less per day in self-study wish to increase their daily mean self-study time to 2 hours. To do this, by how many minutes should these students increase their current mean self-study time per day?

[*see page three*

Part B

*Answer **five** questions only.*

7. As shown in the figure, the points A, B, C and D lie on a level ground such that the point B is to the south of A, the point C is on a bearing of $44^\circ\ 50'$ from B, the point D is to the west of A, $AC = 70.5$ m and $A\hat{C}B$ is a right angle.



Copy the given figure in your answer script and include the above information in it.

Using trigonometric ratios,

(i) find the distance AB, and the time it takes to travel that distance at a speed of 8 metres per second.

(ii) find the magnitude of $A\hat{B}D$ if $AD = 70.92$ m.

8. (i) 24 book racks have been placed in a row in a library. There are 33 books in the first rack and every other rack has 3 more books than the previous rack.

(a) Write the number of books in the first three racks of this row of racks, respectively.

(b) Find the number of books in the 13th rack of this row of racks.

(c) Find the total number of books in the last 12 racks of this row of racks.

(ii) In another book rack consisting of five shelves, there are 12 books in the topmost shelf and books have been placed in the remaining shelves such that every shelf has three times the number of books in the shelf immediately above it. Show that the total number of books in this rack is given by $6(3^5 - 1)$.

9. Do the following geometric constructions using only a straight edge with a cm/mm scale and a pair of compasses. Show the construction lines clearly.

(i) Construct the triangle ABC such that $AB = 8.0$ cm, $AC = 7.0$ cm and $BC = 6.5$ cm.

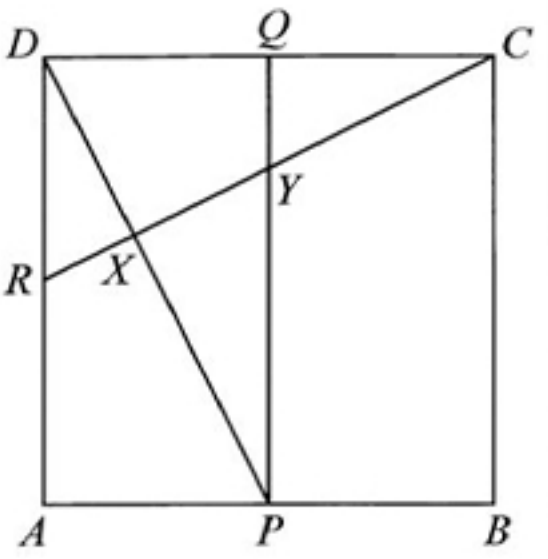
(ii) Construct the bisector of $B\hat{A}C$ and label the point at which it intersects BC as D.

(iii) Construct a perpendicular to the side AB from the point D and construct the circle with centre D which touches the side AB at E.

(iv) If the point at which the circle touches the side AC is F, give reasons why $AEDF$ is a cyclic quadrilateral.

[*see page four*

10. In the given figure, $ABCD$ is a square. The midpoints of its sides AB, CD and DA are P, Q and R respectively. Copy this figure in your answer script.



(i) Give reasons why $APQD$ is a rectangle.

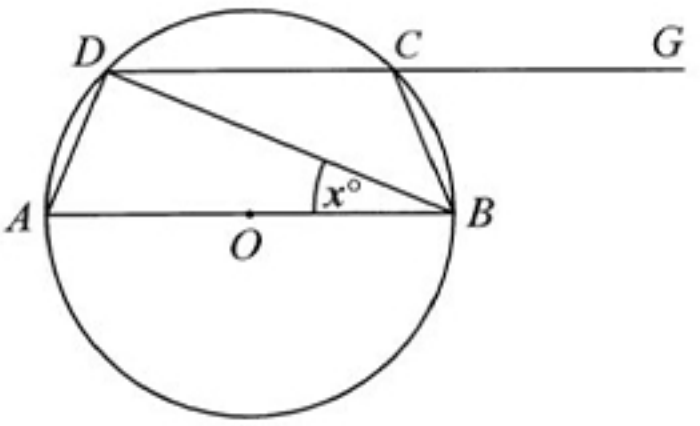
(ii) Show that the triangle PQD and the triangle CDR are congruent.

The straight line RC intersects the lines PD and PQ at the points X and Y respectively.

(iii) Give reasons why $QY = \frac{1}{2}DR$.

(iv) Show that the triangle RXD and the triangle PXY are equiangular and hence show that $3RX = 2XY$.

11. In the circle shown in the figure, O is the centre and AB is a diameter. The chord DC drawn parallel to AB is produced to G.

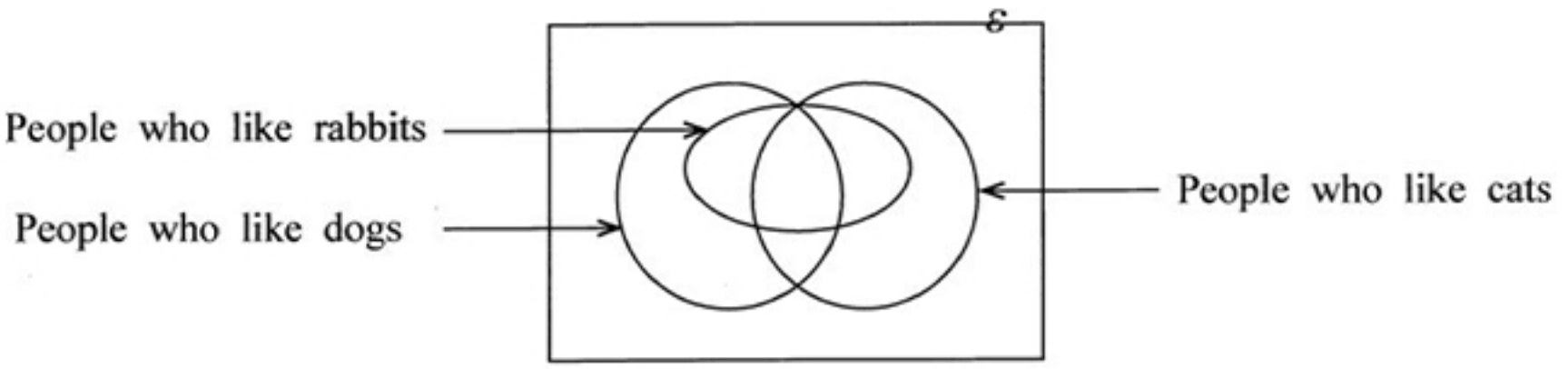


Copy the figure in your answer script.

(i) $A\hat{B}D = x°$. Giving reasons, find the magnitude of $B\hat{C}G$ in terms of $x°$.

(ii) The point E lies on DC produced such that $DB = BE$. Join AC and show that $AB = CE$.

12. An incomplete Venn diagram drawn to represent the information collected from 120 people regarding the types of pets they like from the types rabbits, dogs and cats is given below.



* The number of people who like only the two types dogs and cats is 20.
* The number of people who like all three types, rabbits, dogs and cats is 15.

Copy the given Venn diagram in your answer script and include the given information in it.

(i) How many people like both the types dogs and cats?

* The number of people who like rabbits is 42.
* The number of people who like only the two types rabbits and dogs is 23.

(ii) How many people like exactly two of these three types of pets?

(iii) The number of people who like exactly one of these three types of pets is 52. How many people do not like even one of these three types of pets?

(iv) The number of people who like only dogs is 30. How many people like cats?

* * *