සබරගමුව පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව
சபரகமுவ மாகாண கல்வித் திணைக்களம்
Sabaragamuwa Provincial Department of Education

පළමු වාර පරීක්ෂණය 2018 முதலாம் தவணைப் பரீட்சை 2018 **First Term Test 2018**	11 ශ්‍රේණිය தரம் 11 **Grade 11**

ගණිතය	I	පැය දෙකයි
கணிதம்	I	இரண்டு மணித்தியாலம்
Mathematics	**I**	**Two hours**

Name / Index No. .... Class ∶ ....

- ★ *Answer all the questions on this paper itself.*
- ★ *Each question in part A carries 2 marks each.*
- ★ *Each question in part B carries 10 marks each.*

Part - A

(01) Find the least common multiple of the two algebraic expressions $4a^2b$, $3ab$

(02) If $4.4 \times 4.4 = 19.36$
 $4.5 \times 4.5 = 20.25$
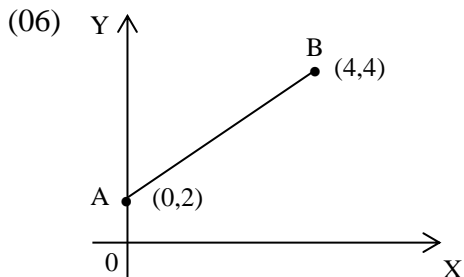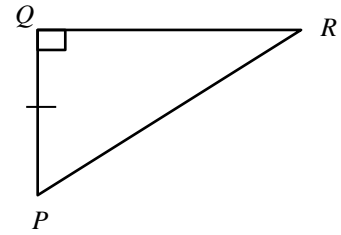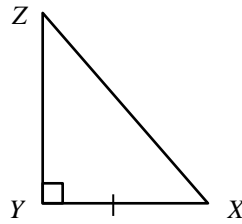 find the first approximation of $\sqrt{20}$

(03) Write down $5^x = 625$ in logarithmic form

(04) The angle of depression of a car Y parked by the road as seen from a window X in the upstairs of a house is 42^0.
Mark the angle in the given figure.

- 1 -
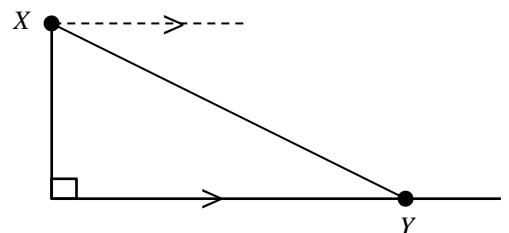
(05) Write down the other pair of elements that should be equal for the pair of triangles given below to be congruent under the case SAS.
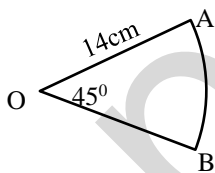

(06)

Write down the equation of the straight line AB in the form $y = mx + c$

(07) Solve : $\frac{12}{x} - 1 = 11$

(08) Simplify : $\frac{1}{3x^2} \div \frac{5}{6xy}$
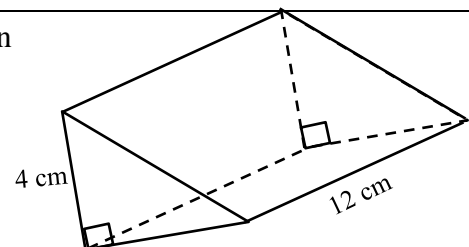
(09) Write down all the positive integers that satisfy the inequality $x - \frac{1}{2} \leq 1\frac{1}{2}$

(10)

Find the length of the arc AB of the sector AOB.

(11) The area of the triangular cross - section of the prism shown in the figure is 6cm². Find the volume of the prism.


(12) Find the volume of water collected in 10 seconds from a pipe through which water flows at a rate of 20 $cm^3\ s^{-1}$.

(13) A man deposits Rs. 1000 in a bank which pays an annual simple interest rate of 12%. How much interest will he receive at the end of 6 months?
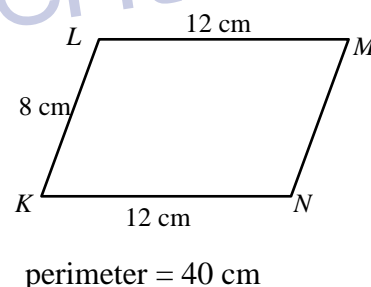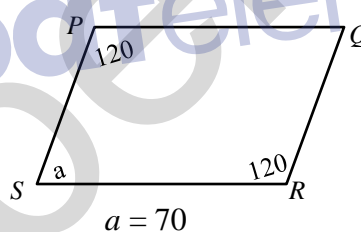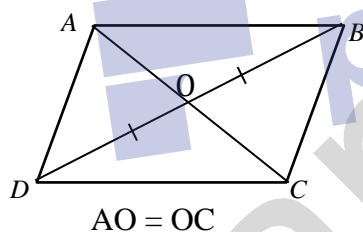
(14) Write down the roots of $x(x-3) = 0$

(15) Nimal, Toss a unbiased coin twice, find the probability of getting a head at least one attempt?

(16)
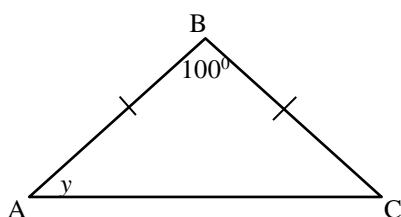
In triangle *ABC*, *AB = BC*. Find the value of *y* using the given information.

(17) Using the information shown in the quadrilaterals given below, name the quadrilateral which is not a parallelogram.

AO = OC

$a = 70$

perimeter = 40 cm

(18) It takes 6 days to cut the grass in a playground using a machine. How many days will it take to do the same task using 2 such machines?
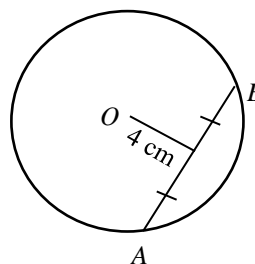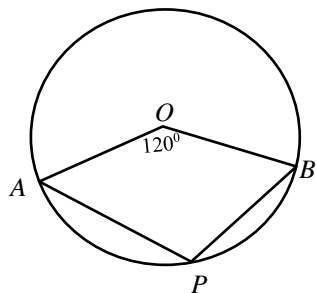
(19)
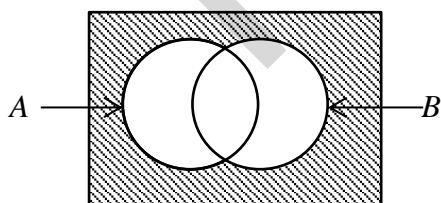
Write down the shaded region in the Venn diagram using the set notation.

(20) In the circle with the center O, the length of the chord *AB* is 6 cm. Using the given information, find the radius of the circle.

(21)

According to the information shown in the figure, find the magnitude of $A\hat{P}B$
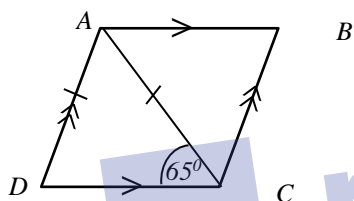
(22) The table given below shows a frequency distribution on the marks scored by a group of grade 11 students for Mathematics I paper.

Class interval	Frequency
0 - 10	4
11 - 20	7
21 - 30	17
31 - 40	8
41 - 50	5

i)   Find the mid value of the class interval 11-20.

ii)   What is the modal class?

(23)

In the parallelogram *ABCD, AC = AD*. Using the given information, find the magnitude of $A\hat{B}C$
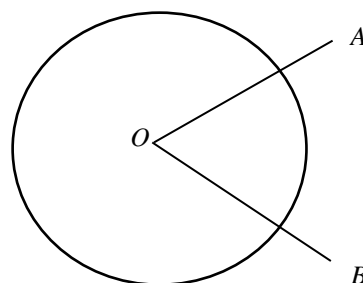
(24)
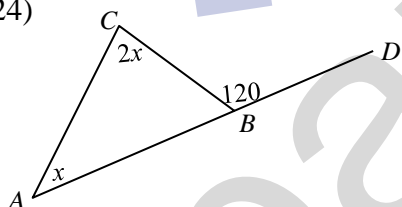
The side *AB* of the triangle *ABC* has been produced to *D*. Find the value of *x*.
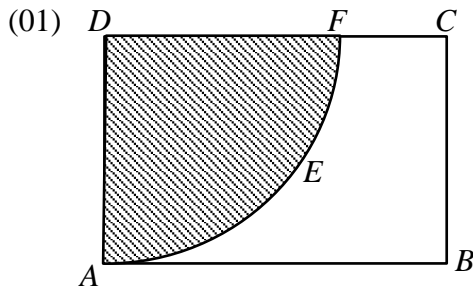
(25)

In the figure, draw a sketch of construction lines required to find the point on the circle with centre O which is equidistant from the lines OA and OB, and indicate this point by naming as P.

(**Answer all questions on this question paper itself**)

(01)

The given figure is a sketch of a rectangular land. The breadth of the land is 14m and the length is twice the breadth.

Vegetable has been cultivated in the sector *AEFD* and banana has been cultivated in the remaining part of the land.

i)   Find the area of the land.

ii) Find the area of the region in which vegetable has been cultivated.

iii) Find the perimeter of the region in which vegetable has been cultivated.

iv) A right-angled triangular part *ABG* is added to the above rectangular land such that the total extent of land for the cultivation of banana is 406 m^2.
     Draw, with measurements, a sketch of the triangular part to be added, in the above diagram.

02) $\frac{3}{5}$ of the population of a certain city are school students, $\frac{3}{20}$ of the population are employees. The remaining number of people is 4608.

i)   Find what fraction of the whole population is the school students and employees.

ii) What fraction of the whole population are the remaining people?

iii) Find the total population in the city.

iv) Find the number of school students in the city.

03) a) 80% duty is charged when a motor bike worth Rs. 50000 is imported.

    i) Find the duty charged for the motor bike.

    ii) If Rs. 12500 is spent as other expenses, find the new value of the motor bike.

    iii) A businessman sells the above motor bike such that he earns a profit of Rs. 17500. When buying it, a buyer has to pay a 15% VAT. What is the total amount that should be paid to buy the motor bike?

  b) In a certain factory, the number of goods scheduled to be produced for a day is produced by operating 10 similar machines for 6 hours. How many more machines should be operated to produce the same number of goods in 5 hours?
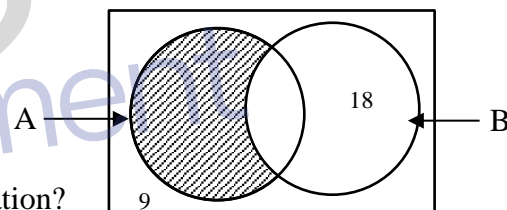
04) a) Information on a group of students who sat for an examination is shown below.

ε = {students who sat for the examination}

A = {Girls who sat for the examination}

B = {Students who passed the examination}

$n(A) = 60, \quad n(B) = 40$

    i) What is the number of girls who passed the examination?

    ii) Describe the students who belong to the shaded region shown in the above Venn diagram and indicate it in set notation.

    iii) Find the total number of students who sat for the examination.

  b) A box contains 5 mangoes in a box. Out of them, 3 mangoes are ripe and the remaining mangoes are raw. All mangoes are of the same size. One mango is taken randomly out of the box.

    i) What is the probability of obtaining a ripe mango?

    ii) An incomplete tree diagram relevant to the above event is shown below. Mark the relevant probabilities on the branches.

first taking

········· ╱ ripe mangoes

⟨

·········· ╲ raw mangoes
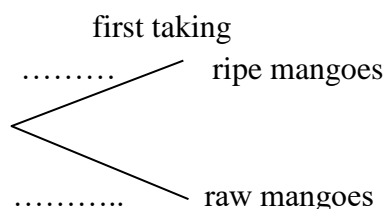
iii) The mango taken out first is put back into the box and another mango is taken randomly from the box. Extend the tree diagram relevant to the second taking and find the probability that the two mangoes obtained in both takings are ripe.

05) Each student in grade 11 of a certain school had to select exactly one of the four subject Art, Dancing, Music and Drama as the aesthetic subject. How the students selected these subjects is given in the incomplete table given below. There are 40 students in grade 11 of this school. The table includes another column of angles at the centres of the sectors required to draw a pie chart.

Subject	No. of students	Angle at the centre
Art	18	162^0
Dancing	10	90^0
Music	___	___
Drama	4	___

i) What is the number of students who learn music?

ii) Find the angle at the centre of the sector that represents the students who learn music.

iii) Find the angle at the centre of the sector that represents the students who learn drama.

iv) Using the above information, complete the incomplete pie chart shown below.