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முதலாம் தவணை பரீட்சை - 2018

Second Term Evaluation

ශ්‍රේණිය தரம் **Grade**	09	විෂයය பாடம் **Subject**	**Mathematics**	පත්‍රය வினாத்தாள் **Paper**	I , II	කාලය காலம் **Time**	02 hours

Name : ……………………………………………… ……. Index No :………………………

Part I

- **Answer the questions 1 to 20 on this paper itself.**
- **Each question carries 02 marks.**

01. General term of a number pattern is $T_n = 5n - 8$. Find the 7th term of it.

02. Simplify. $1101_{two} + 1010_{two}$

03. A discount of Rs. 30 is given when selling a shirt worth Rs. 600. Calculate the discount percentage.

04. Simplify. $\frac{2}{3}$ of $1\frac{1}{5}$

05. Find the value of x.

06. Write suitable values for blanks. $(x - 3)(x + 5) = x^2 + \boxed{} x - \boxed{}$
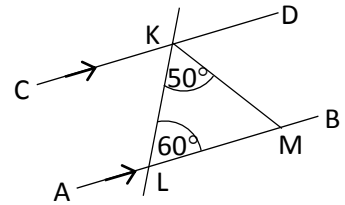
07. If a car which travels at a uniform speed goes 210km in 3 hours, what is the distance it goes in 5 hours?

08. Simplify. $(3x^5)^2$

09. The order in which the keys need to be pressed to express $\frac{3}{4}$ as a percentage is given below. Fill in the blanks.

$$\boxed{ON} \rightarrow \boxed{3} \rightarrow \boxed{\div} \rightarrow \boxed{4} \rightarrow \boxed{} \rightarrow \boxed{=} \rightarrow \boxed{} \quad 75$$

10. In the figure, lines AB and CD are parallel. If $K\hat{L}M = 60^0$ and $L\hat{K}M = 50^0$, find the magnitude of $D\hat{K}M$.

11. Write the following numbers in general form.

    i. 7.871 x 10^2 = ………………………. ….. 　　ii. 　7.871 x 10^{-2} = ………………………………..

12. Make x the subject of the formula $y=mx + c$.

13. What is the distance travelled by a wheel with the radius 35cm, when rotating one round along a flat road?

14. When a certain number is rounded off to nearest 10 the answer is 60. What is the least and the greatest value that this number can take?

15. What is the maximum amount of water that can be put into a cuboid shaped tank with the length 30cm, breadth 20cm and the height 15cm?

16. If $p =4$ and $q = -\frac{1}{3}$, find the value of $5p - 9q$.

17. According to the information given in the figure, find the value of x.
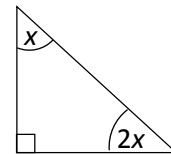
18. Radius of a circle is 6.74cm. round off this value to,

    i.　Nearest first decimal place –

    ii.　Nearest centimeter –

19. When it is given that $a + b = 180^0$ and $b + c = 180^0$, what is the conclusion that you can arrive at using axioms.

20. Find the value using factors. $99^2 - 1$

Part II

- **Answer the first question and another 04 questions only.**
- **First question carries 16 marks and the other questions carry 11 marks each.**

01. Answer the following questions given related to the lesson **loci and constructions** which you have learned in the classroom.

    i.   (i)   Write down a definition to describe loci.

           (ii)   How many basic loci did you learn from the lesson?

           (iii)   Describe briefly one of the basic loci that you have learned.

           (iv)   Describe an activity that you have done in the class room, in order to identify the loci mentioned above.

    ii.   (i)   Draw an acute angled triangle and name it as ABC.

           (ii)   Construct the perpendicular bisector of the line AB.

           (iii)   Construct a perpendicular to BC from A.

    iii.   (i)   Construct a 6cm long line segment and name it as PQ.

           (ii)   Construct a 60^0 angle at Q, taking PQ as an arm and name it as PQR.

           (iii)   Construct the angle bisector of $P\hat{Q}R$.

02. (a)   (i)   Fill in the blanks of the ratios given below.

$3 \ : \ 5 \quad = \underline{\hspace{1cm}} : 30$

$10 : \underline{\hspace{1cm}} = 80 \quad : \ 24$

           (ii)   In a certain soft drink manufacturing factory, a machine can fill 160 bottles in 8 minutes. Using the knowledge on rates, find the number of bottles that can be filled in 5 minutes.

    (b)   A businessman imports some electrical appliances worth 90 American dollars, on a day that the exchange rate is Rs. 160 for an American Dollar.

    i.   What is the import value of the electrical appliances in Sri Lankan rupees?

    ii.   What should be the marked price of the electrical items, if he wants to obtain a profit of 20%?

    iii.   If a discount of 5% is given when selling the items, calculate the discount.

03. (a)   Solve the following simple equations.

        i. $\frac{2x}{3} + \frac{x}{2} = 21$ ii. $3 \{ \ 2(\ x + 1) - 1\} = 9$

    (b)   Solve the simultaneous equations and find the value of a and b.

$2a + b = 13$

$3a - b = 12$

04. (a) An incomplete table of values prepared to draw the graph of the function $y = -2x + 3$ is given below.

x	-1	0	1	2	3	4
y	....	3	1	-1	-3	....

       i. Fill in the blanks in the table by showing the relevant working.
       ii. Draw the graph of the above function on a Cartesian plane.
       iii. Write the equation of the graph which is parallel to the above graph and which passes through the origin.

  (b) i. Without drawing the graph of the function $3x + 2y = 6$, write down the gradient and the intercept of it.

       ii. Without drawing the graph of the function $3x + 2y = 6$, write down the coordinates of the points where the graph intersect the x axis and the y axis.

05. The figure shows a flower bed which consist with a rectangular shaped portion and a semicircular portion.
      i. What is the radius of the semicircular portion?
      ii. Calculate the BCD arc length.
      iii. Find the AD length.
      iv. Find the perimeter of the flower bed.
      v. It is needed make a fence around the flower bed using wooden poles. The gap between two poles should be 50cm. how many wooden poles are needed for that?
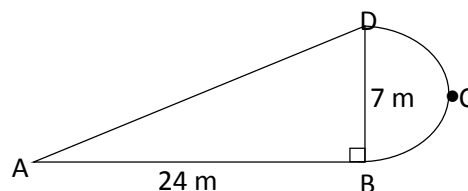
06. (a) In the triangle ABC, side AC is produced to D and CE is drawn parallel to AB.
      i. Name an angle equal to $A\hat{B}C$. Give reasons.
      ii. Name an angle equal to $B\hat{A}C$. Give reasons.
      iii. Using axioms show that, $A\hat{B}C + B\hat{A}C = B\hat{C}D$.
      iv. Write down the theorem which is relevant to the result that you have obtained in (iii).
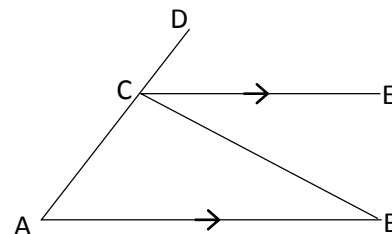
  (b) According to the information given in the figure, find the magnitudes of the angles x, y and z.
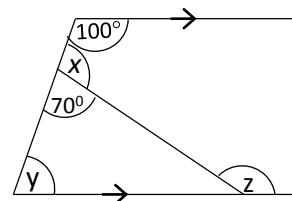
07. (a) Simplify using index laws.

  (i) $\dfrac{4x^3 \times 3x^2}{6x^5}$ (ii) $\dfrac{(a^3)^{-2} \times a^4}{(a^{-2})^2}$

  (b) Find the value.

  (i) $3^{-2} + \dfrac{1}{3}$ (ii) $3.5 \times 10^2 \times 2 \times 10^2$