

Kegalle Educational Division

Second Term Test - 2019

Grade 9

Mathematics

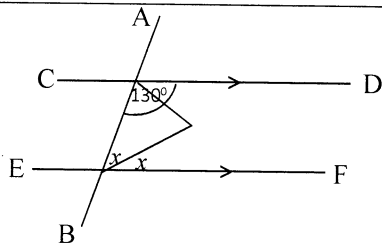
Time : 2 Hours

Part - I

Answer all the questions

01) The general term of a number pattern is $3n - 1$. Find the first term and the second term.02) 4.5×10^{-2} Convert this number to general form

03)

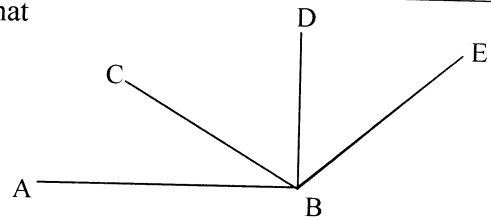
Find the value of x according to the information given on the diagram.04) The order in which the keys of a calculator need to be pressed to find the value of $\sqrt{25}$ is the following. Fill in the blanks.

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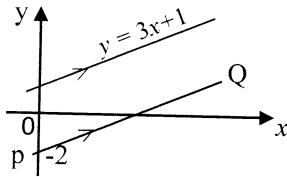
05) $(x+3)(x-2)$ Expand and simplify06) The length and breadth of the base of a rectangular shaped tank are 2m and 1.5 m respectively. If the volume of water in it is 4.5m^3 , find the height of the water level.07) Solve : $\frac{x-3}{5} = 1$

08) If the price of 8kg of rice is Rs. 680, then find the price of 3kg of rice.

- 09) In the given figure, If $\angle ABD = \angle CBE$ Show that $\angle ABC = \angle EBD$



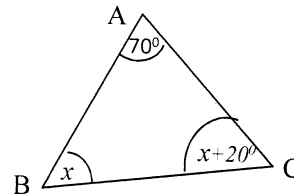
- 10) Write the equation of the straight line which is parallel to the straight line $y = 3x + 1$ and intersect y axis at -2



- 11) Fill I the blanks.

$$\frac{x^{\boxed{}}}{y^{-3}} = \frac{y^3}{\boxed{}^2}$$

- 12) Find the value of x

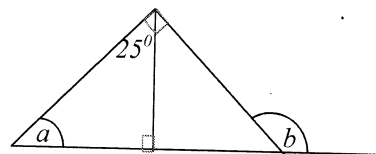


- 13) Find the value $11101_{\text{two}} - 110_{\text{two}}$

- 14) Make 't' the subject of the formual $v = u + at$

- 15) Find the circumference of a circle of diameter 21 cm. (take $\pi = \frac{22}{7}$)

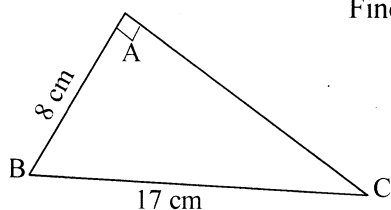
- 16) Find the value of 'a' and 'b' according to the information given on the diagram.



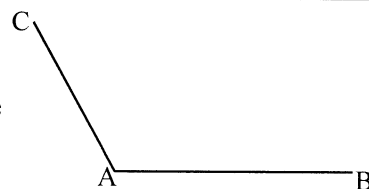
- 17) A commission of 6% is charged when selling a lot of biscuits. If Rs. 18000 charged as the commission find the selling price of the lot of biscuits.

18)

Find the length of the side AC using the given information.

19) Factorize : $1 - 4x^2$

20) AB and AC are two straight roads. It is required to fix a lamp post at an equidistance from AB and AC. Show the suitable location for the lamp post using the knowledge of loci.



Part - II

Answer 6 questions only

- 01) a) A trader bought a bicycle at Rs. 16,000 and marked the price of it keeping a profit of 15% when selling it. 5% discount was given on the marked price.
- Find the marked price of the bicycle. (02)
 - Find the selling price after giving the discount. (03)
 - Find the profit and the profit percentage he received by selling this bicycle. (03)
- b) A vehicle travels 112 km using 8 litres of petrol. Find the amount of petrol needed to travel 70 km. (02)

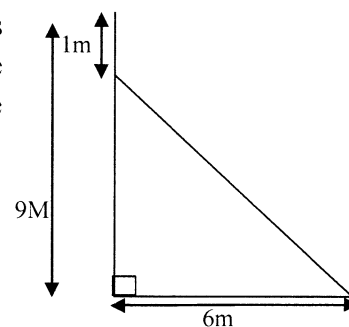
02) a) Make 'x' the subject of the formula $ax = bx + c$

b) An incomplete table of values prepared to draw the graph of the function $y = 2x - 1$ is given below.

x	-3	-2	-1	0	1	2
y	-7	-5	-1	3

- Fill in the blanks of the table. (02)
- Draw the graph of the above function on a suitable co-ordinate plane. (03)
- Find the value of y when $x = 3$ by producing the graph. (01)
- Write the equation of the straight line which is parallel to the above straight line and passes through the origin. (01)

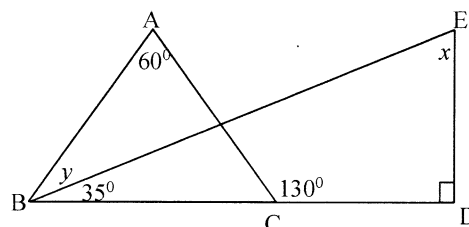
- 03) a) To keep 9m tall lamp post vertical one end of a supportive cable is attached to a point which is 1m below the top of the post while the other end is fixed to a point on the ground 6m from the foot of the lamp post.



- i) Find the height of the point at which the supportive cable is attached from the ground level? (01)
- ii) Find the minimum length of the cable? (03)

- b) In the given figure ABC and BDE are two triangles.

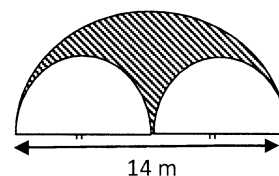
$$\widehat{BAC} = 60^\circ, \widehat{ACD} = 130^\circ, \widehat{DBE} = 35^\circ \text{ and } \widehat{BDE} = 90^\circ.$$



- i) Find the value of x (02)
- ii) Find the value of y giving reasons. (04)

- 04) a) The capacity of a milk bowser is 4.5 m^3 . If half of it is filled with milk find the volume of milk in litres. (C. 03)

- b) A semi circular lamina consist with two small semicircular arcs is shown in the figure. Radius of the larger semi circle and diameter of the smaller semi circles are equal. (Take $\pi = \frac{22}{7}$)



- i) Find the arc length of the larger semicircle. (02)
- ii) Find the perimeter of the shaded portion (03)
- iii) Write the relationship between the arc length of the larger semicircle and perimeter of the shaded portion. (03)

05) a) i) Simplify : $\frac{(5^2)^2 \times 5^{-2}}{5^2}$ (03)

ii) Simplify : $\frac{4a^4 \times 3a^2}{6a^5}$ (03)

- b) i) The population of a certain country is 45 000 000. Write this in scientific notation. (02)

- ii) 10.45 round off this number

a) to the nearest first decimal place. (01)

b) to the nearest whole number. (01)

06) Using only the straight edge and the pair of compasses do the following construction.

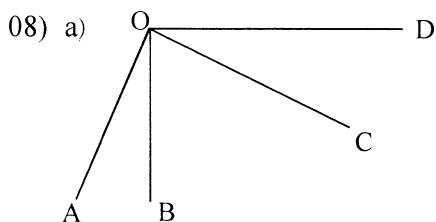
- i) Construct the triangle ABC such that $AB = 5\text{cm}$, $\hat{BAC} = 60^\circ$, $\hat{ABC} = 45^\circ$ (03)
- ii) Construct a perpendicular to AB from C and name the intersection point of AB and perpendicular as O. (02)
- iii) Construct a circle taking O as the centre and OA as the radius. (02)
- iv) Write the relation between the lengths of OC and OB. (02)
- v) Sameera says that \hat{ACB} is an acute angle. What is the reason for it? (01)

07) i) Simplify : $\frac{4}{7}$ of $\left(\frac{1}{2} + \frac{1}{8}\right)$ (02)

ii) A father divided $\frac{3}{4}$ of his land among his children. If the area of remaining portion is 175m^2 find the area of the whole land. (03)

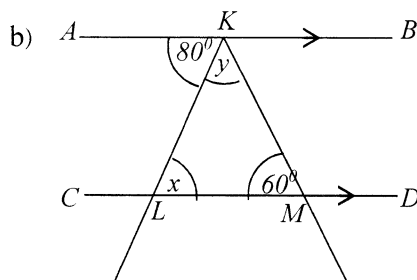
b) i) factorize : $py + p + 2(y + 1)$ (02)

ii) Solve $x + 3y = 19$
 $4x - 3y = 1$ (03)



In the given figure $\hat{AOC} = \hat{BOD}$, $\hat{AOB} = 25^\circ$ and $\hat{AOD} = 115^\circ$

- i) Show that $\hat{AOB} = \hat{COD}$ (02)
- ii) Show that \hat{AOC} is a right angle. (02)



In the given figure $AB \parallel CD$, $\hat{AKL} = 80^\circ$ and $\hat{KML} = 60^\circ$.

- i) Find the value of x (02)
- ii) Find the value of y, giving reasons. (02)
