PROVINCIAL DEPARTMENT OF EDUCATION
NORTHERN PROVINCE

Second Term Exam – 2016

Maths

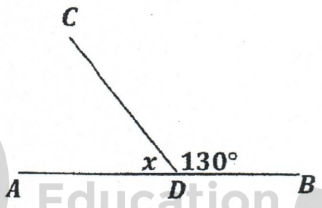
Index No :..... **Grade** : 10 **Time** :- $3\frac{1}{2}$ **Hours**

Part - I

01) Simplify : $\frac{1}{5}+\frac{2}{5}$

02) Solve : $2x+3=11$

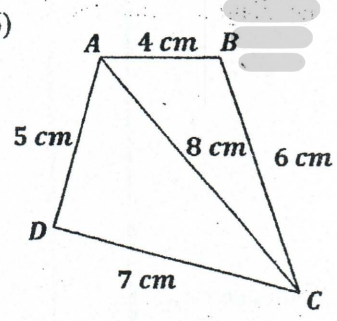
03) In figure AB is straight line.
Find the value of x



04) Remove brackets and simplify : $3(2x+5)+x$

05) If Rs. 800 is divided between A and B in the ratio 3 : 2, find the amount of money A get.

06)



Find the perimeter of the given quadrilateral.

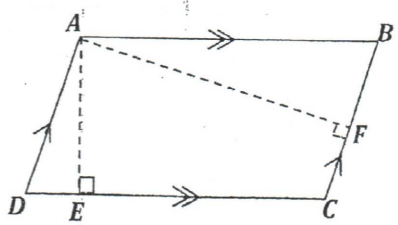
07) Write two consecutive integers which are closest to $\sqrt{18}$.

08) Find the least common multiple of $x^2, 3xy, 6x$

09) Find the value of $\sqrt{5184}$

10) If $x=2,\ y=3$ Find the value of x^2+xy.

11) Write any two Conditions two triangles to be congruent.

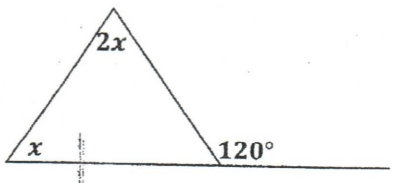
12) 

In figure $ABCD$ is a parallelogram

If $DC = 15\ cm,\ AE = 8cm,\ BC = 12\ cm$

Find the length of AF

13) Factorize : $9x^2 - 6x$

14) 

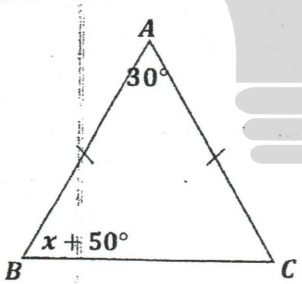
If figure , find the value of x.

15) 10 men can finish a certain work within 12 days. How many days are needed for 4 men to complete half of the above work.

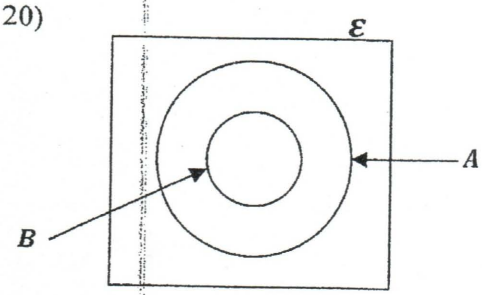
16) Simplify : $\frac{x}{(x-2)} + \frac{2}{(2-x)}$

17) How much is 60% of Rs. 500.

18) What is the simple interest for 3 years of Rs. 2000 at 6% simple interest per annum.

19) 

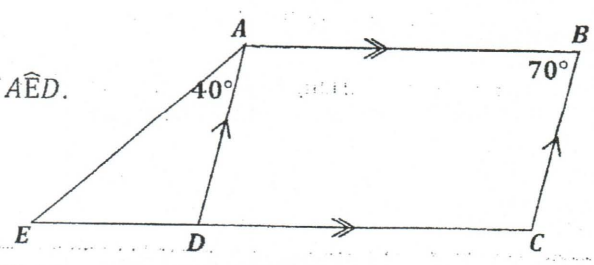
According to the data given in the diagram, find the value of x.

20) 

Shade the set region $A \cap B^{\prime}$ in the given Venn diagram.

21) In figure $ABCD$ is a parallelogram.

$A\hat{B}C = 70°,\ E\hat{A}D = 40°$ find the magnitude of $A\hat{E}D$.



22) Simplify : $2\lg 5 + 2\lg 3 - \lg 2$

23) Write the equation of the straight line which parallel to $y = 2x + 3$ and passes through the point $(0,2)$.

24) Make x the subject of the formula $lx + my = n$

25) If the mean of the given distribution is 17. Find the value of x

$14,\ 15,\ x,\ x+1,\ 19,\ 21.$

25x2 = 50

Part - IB

01) a) Simplify : $\left(\frac{1}{2}+\frac{1}{3}\right) \div \frac{1}{6}$

b) A person travelled $\frac{2}{5}$ of his journey by walk and $\frac{2}{3}$ of remaining by bus and the rest distance by three wheeler.

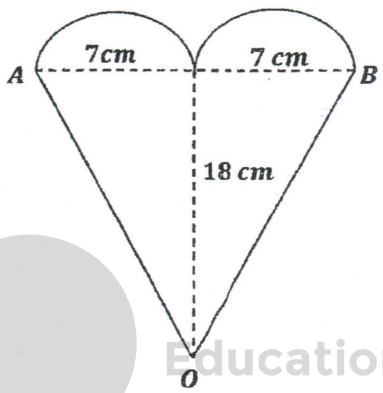
i) What fraction of the whole distance is remaining after walking.

ii) What fraction of the whole distance is travelled by bus.

iii) If the travels 1.2 *km* by three wheeler, find the total distance of his journey.

(3 + 2 + 2 + 3)

02)



The figure shows decoration cut from a tissue sheet to make a decoration object.
Answer the following questions using the pattern.

i) Find the area of a semi circle.

ii) Find the area of triangle OAB.

iii) Find the total area of the figure.

iv) If pearls are pasted long the semicircular arcs with 2cm space, How many pearls are needed to this purpose.

(3 + 2 + 2 + 3)

03)

i) Remove brackets and simplify

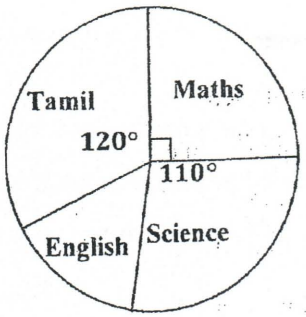
$(3x + 2)(2x - 3)$

ii) If $x + y = 10$ and $xy = -6$ find the value of $x^2 + y^2$.

iii) Solve : $x^2 - x - 6 = 0$

(3 + 3 + 4)

04) The pie chart given here shows the information about favorite subjects of grade 10 students.



a) Which subject likes most number of students?

b) Find the magnitude of the angle represents the students like English.

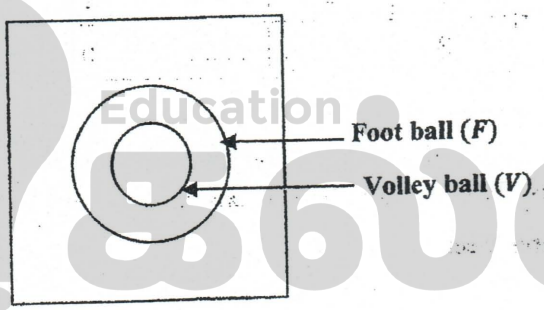
c) If 55 students like Science, Find the number of students likes Tamil.

d) Find the total number of students in the class.

e) How many more students is the number of students like Science than number of students like Maths.

$(1+2+3+2+2)$

05)



The Venn diagram given here shows the information about the prefer games of 50 grades 10 students in a certain School.

If the number of students play foot ball is 35 and the number of students play foot ball only is 10.

i) How many students play volley ball?

ii) How many students do not play at least one of the two games

iii) The set represents the students play foot ball as F, and volley ball as V, write the relationship between the two sets in set notations.

iv) Shade the set region $(F \cap V^{1})$

$(3+2+2+3)$

Part - II

❖ **Answer Only Five Questions.**

06) a) The annual value of Kumar's house is Rs. 50000. Kumar gave his house to Ravi for rent at Rs. 4000 per month. He spent 10% of the money gained from the rent in one year to the maintenance of the house and paid 8% of the annual value as assessment tax of the house.

i) How much money gained as rent for one year.

ii) Find the amount of money paid as assessment tax.

iii) Find the amount of money he spent for the maintenance of the house.

iv) How much is the balance.

b) The value of a camera is Rs. 20000. If Rs. 8000 is paid as duty, when the camera is imported. Find the rate percent charged as duty?

$(2+4+4+6+4)$

07) An incomplete table to draw the graph of the function $y = x^2 - 4$ is given below.

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

a) i) Fill in the blanks.

ii) Taking 10 small divisions as 1 unit along to both x axis and y axis as scale and draw the graph of the function on graph sheet.

b) Using your graph

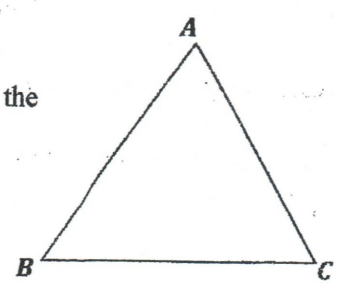
i) Write the co-ordinates of the turning point

ii) Find the values of x when $y = 0$

iii) Find the roots of the equation $x^2 - 4 = 0$

iv) Find the values of x when $y = 1$ and hence find the value of $\sqrt{5}$.

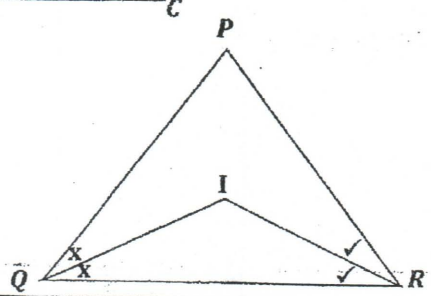
08) i) In ΔABC, if $AB = AC$.
Write the relationship between the angles $A\hat{B}C$ and $A\hat{C}B$.



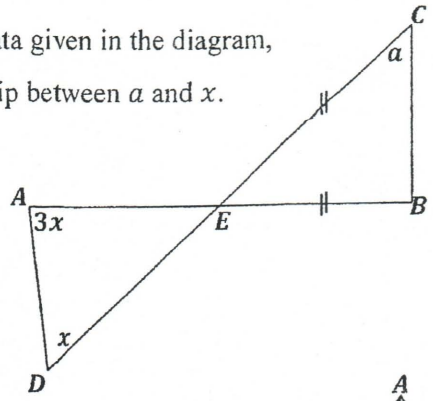
ii) In ΔPQR if $Q\hat{P}R = 80°$.

a) Find the value of $P\hat{Q}R + P\hat{R}Q$

b) Find the value of $Q\hat{I}R$



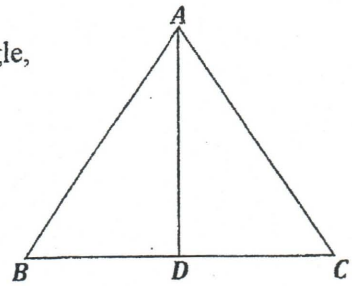
iii) According to the data given in the diagram, write the relationship between a and x.



iv) In figure ΔABC is an equilateral triangle, AD is the bisector of the angle $B\hat{A}C$

a) Find the magnitude of $B\hat{A}C$.

b) Find the magnitude of $A\hat{D}B$.



09) i) Evaluate : $64^{\frac{2}{3}} \times 25^{\frac{1}{2}}$

ii) Simplify : $\frac{(2a^2)^2 \times 3a^{-4}}{12a^5}$

iii) If $\log_x 2401 = 4$ find the value of x

iv) Simplify using logarithmic table.

$\frac{15.46 \times 273.8}{28.45}$ $(4+5+4+7)$

10) i) Solve $5x - 8 = 22$

ii) The cost of 2 exercise books and a pen is Rs. 50; and the cost of an exercise book and two pens is Rs. 40.

a) Taking the price of an exercise book as Rs. x and the price of a pen as Rs.y Write two equations in x and y.

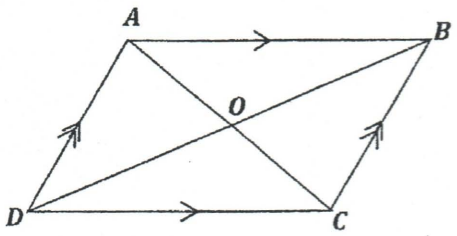
b) Find the price of a pen and exercise book separately by solving the above equations.

iii) Expand and simplify : $(2x - 3y)^2$

11)

i) In the given parallelogram.

Write two properties of the length of the diagonals.



ii) The diagonals of parallelogram $PQRS$ are intersect at O

$PM = TR,\ SN = QL$

a) Show that $NO = OL$

b) Show that $MO = OT$

c) Show that $MLTN$ is a parallelogram

d) Show that $SMQT$ is a parallelogram