yasodaradevibalikamahavidyalayayasodaradevibalikamahavidyalayaysdaradevibalikamahavidyalayayas
odar... so
dara... ra
devi... ev
ibali... ba
likamahavidyalayayasodaradevibalikaanahavidyalayayasodaradevibalikamahavidyalayayasodaradevibalik
amahavidyalay... vibalikam
ahavidyalayaya... ...vibalikama
havidyalayayasodaradevibalikamahavidyalayayasodaradevibalikamaidyalayayasodaradevibalikaahavidy
alay... ...avidyalayayas ...ya
layayasodaradevibalikamahavidyalaayasodaradevibalikamahavidyalayayasodaradevibalikamahavidyala

YASODARA DEVI BALIKA MAHA VIDYALAYA

1st Term Test 2020   - Grade 10

| Mathematics | E | I | 2 Hours |

- Answer all questions.

Name : ……..

Part A

01) Simplify $\frac{2}{7} + \frac{3}{7}$

02) Select and underline numbers which are not perfect squares.

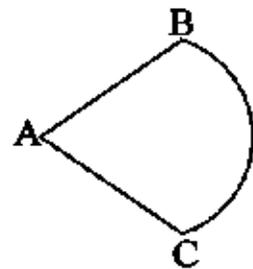   (i)   75   (ii)   36   (iii)   81   (iv)   24
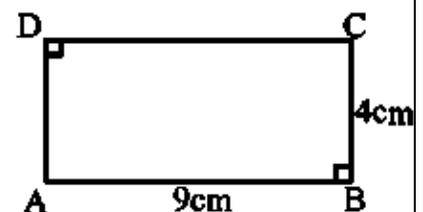
03) Simplify $\frac{x}{4} + \frac{x}{3}$

04) Perimeter of the sector ABC is 36cm. If the arc length BC is 22cm, find its radius.

05) What is the length of a side of a square of area the same as that of the rectangle ABCD.
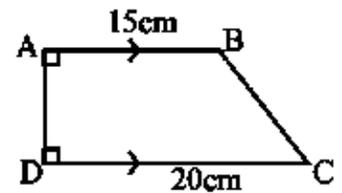
06) What is the value of $0.09 + 0.7$.

07) If $\frac{x}{5} - 1 = 4$, find x ?

08) Find the gradient and the intercept of the straight line represented by $y = 4x - 1$.

09) $3x - 2y = 5$
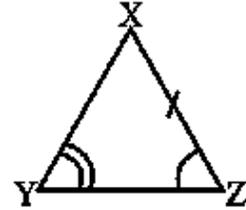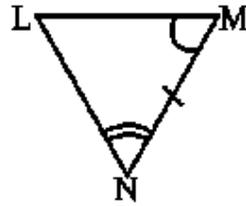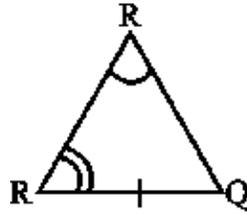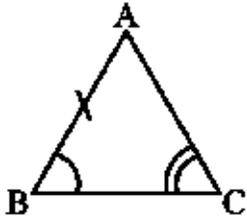$4x + 2y = 16$ Find the value of x.

10) Find the value. $\frac{3}{4} \div \frac{7}{8} \times \frac{1}{2}$

11) Area of ABCD trapezium is 175cm^2. Find the AD length.
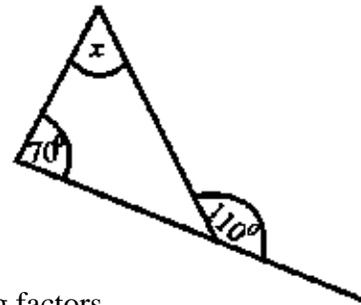

12) Factorize $x^2 - xy - x + y$.

13) Select the pair of congruent triangles and write the case of congruence.

14) Find the suitable value in the blank. $\boxed{}$: $3 = 25 : 15$
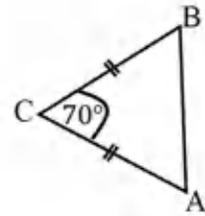
15) Find the L.C.M $4x^2y$, $12xy$.

16) Find the value of x.

17) If $x + y = 9$ and $xy = 18$, find the value of $x^2 + y^2$ using factors.

18) Solve the inequality $x - 2 < 1$ and write a suitable positive integral solution.
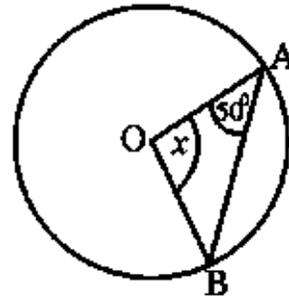
19) BC = AC a nd BĈA = 70°. Find the magnitude of CB̂A.

20) Convert 43_{ten} into a binary number.

21) Write the common term of the number sequence 4, 7, 10, 13, ……….

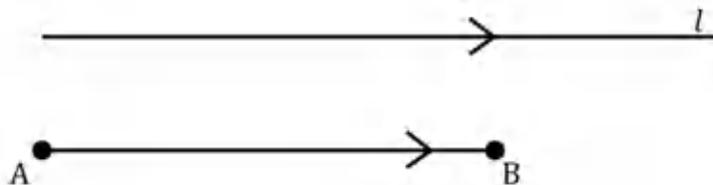22) Find the value of x.

23)   Are the straight lines AB and CD parallel? Give reasons.
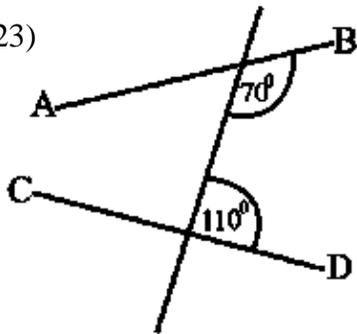
24) If $x = -2$ and $y = 3$, find the value of $(2x + 3y)$

25) The straight line l lies at a constant distance to AB. Find the point $'p'$ which lies on that straight line and equidistant to the points A and B.
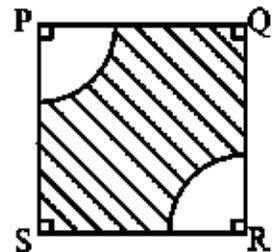
Part – B
Answer all the questions on this paper itself.

01) A father left $\frac{2}{7}$ of the land he has for himself. $\frac{2}{5}$ of the remainder was give to his wife and the rest was equally divided among the three children.
  (i)   What is the remainder after separating the land for father?

  (ii) What is the fraction of land given to the wife.

  (iii) What is the remaining fraction of land for the three children.

  (iv) If a child got $45 ha$ what is the amount of the whole land in ha ?

  (v)   If the value of the land given to the wife is Rs 27000 , what is the value of the whole land.

02) PQRS is a square shaped lamina of length of a side 21cm. As shown in the figure two sectors are removed from it. Radius of a sector is 7cm. The remaining part is shaded.
  (i)   What is the perimeter of the shaded part.

  (ii) What is the area of the shaded part.

03) The pie chart below shows the information about the basket II
    subjects learnt by 240 grade 10 students in a certain school.
    (i)   How many students learn Eastern Music.

    (ii)   If the number of students learning art is 80 , find the
             relevant angle at the centre of the sector to represent
             them.

    (iii)   If the angle at the centre of the sector representing the number of students learning
             dancing is 45°. Find the number of students learning dancing.

    (iv)   Express the number of students learning drama & theatre as a fraction of the toral
             number of students. Give the answer in the simplest form.

04) a)
    (i)   What is the suitable term in the blank.

             No. of man hours = no. of men × no. of days × ……………………………..

    (ii)   If 80 man hours work is done by 8 men in 2 days, how many hours they have to
             work per day.

    b) 16 men need 10 days to complete a certain task. After completing $\frac{2}{5}$ of the work , another
       8 men joined.
        (i)   What is the magnitude of the work done to complete the task.

(ii)   How much of the task is $\frac{2}{5}$ of the total magnitude.

(iii)   How many days will it take to complete the task.

(iv)   If Rs 1200 paid per day for one person find the total amount of money needed to pay for the whole task.

05)
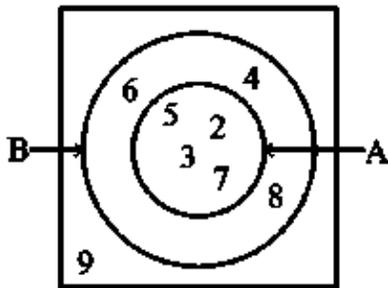
a) Fill in the blanks using the symbols $\subset$, $\in$, $\notin$
   1. A …………………… B
   2. 3 …………………… B
   3. 9 …………………… A

b) Find n(A)

c) Write the following sets with their elements.
   1. $\mathcal{E}$
   2. A ∩ B
   3. A′

yasodaradevibalikamahavidyalayayasodaradevibalikamahavidyalayaysdaradevibalikamahavidyalayayas
odar...so
dara...ra
devi...ev
ibali...ba
likamahavidyalayayasodaradevibalikaanavidyalayayasodaradevibalikamahavidyalayayasodaradevibalik
amahavidyalay...vibalikam
ahavidyalayaya...ibalikama
havidyalayayasodaradevibalikamahavidyalayayasodaradevibalikamaidyalayayasodaradevibalikaahavidy
alay...avidyalayayas...vidya
laya...idyalayayasod...a
yayasodaradevibalikamahavidyalayayasodaradevibalikamavidyalayaayasodaradevibalikamahavidyalaya

YASODARA DEVI BALIKA MAHA VIDYALAYA

1ˢᵗ Term Test 2020   -   Grade 10

| **Mathematics** | E | II | **3 Hours** |

- Answer all questions.

Name : …………………………………………………………………………………………………..

Part A
Answer 5 questions only.

01) a)
    (i)   Buying price of a certain item is Rs 200 and its selling price is Rs 220. Find the profit percentage.
    (ii)   Buying price of a certain item is Rs 800. FInd its selling price if there is a 10% loss.

  b) Buying price of an electrical equipment is Rs 4000. Price is marked expecting 15% profit. 4% discount is given when selling.
    (i)   Find the marked price of the item.
    (ii)   What is the discount given.
    (iii)   What is the amount of money should be paid by the consumer.

02)

x	-1	0	1	2
y	…………..	-1	…………..	5

Given above is an incomplete value table prepared to draw the graph of the equation $y = 3x - 1$.
(i)   Fill in the blanks.
(ii)   Draw the graph on a suitable coordinate plane.
(iii)   If $(-3, b)$ lies on that straight line graph find the value of b.
(iv)   Write the equation of the straight line parallel to the straight line drawn above and passes through the point (0,3).

03) The table below shows the number of sacks of rice sold in a day in a certain store.

No. of sacks of rice (x)	No. of days (f)	$f \times x$
8	1	……………..
9	3	……………..
10	5	……………..
11	8	……………..
12	7	……………..
13	4	……………..
14	2	……………..
Total	……………..	……………..

(i)   Copy down the table in to your answer sheet and complete the table.
(ii)   What is the range of this data.
(iii)   Find the mode.
(iv)   Find the median.
(v)   Find the mean number of sacks of rice sold per day to the nearest whole number.
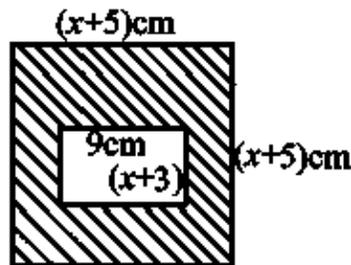
04) a) Factorize.
    (i) $x^2y^2 - 25$
    (ii) $2x^2 - 9x + 10$

   b) $7^2 + 7 \times 8 + 15$
       Find the value using the knowledge on factors.

   c) Find the value of $\sqrt{22}$ to two decimal places and round off to the first decimal.

05) In the given figure length of a side of the square is $(x + 5)$cm. Length and breadth of the rectangle are 9cm and $(x + 3)$cm respectively.

(i)   Write an algebraic expression for the area of the square in terms of x and simplify it.
(ii)   Write an expression for the area of the rectangle in terms of x and simplify it.
(iii)   Write an expression for the area of the shaded part in terms of x.
(iv)   Separate that expression into factors.

06) a)

    (i) $S = \frac{n}{2}(a + l)$, make 'n' the subject.

    (ii)   If $S = 8$, $a = 3$, $l = 5$ find the value of n.

  b) $m + 2n = 8$
      $5m - 2n = 4$
      Find the values of m and n.

  c) $\dfrac{\left(x^3\right)^2 \times x^0}{x^{-3}}$ simplify.

Part B
Answer 5 questions only.

07) a) $\frac{1}{1}$, $\frac{2}{3}$, $\frac{3}{5}$, $\frac{4}{7}$, ... write the general term of this number sequence.

  b) General term of a number sequence is $4n - 3$.
    (i)   Find the first three terms.
    (ii)   Find the 10th term.
    (iii)   Write $(n + 1)^{th}$ term in terms of n.

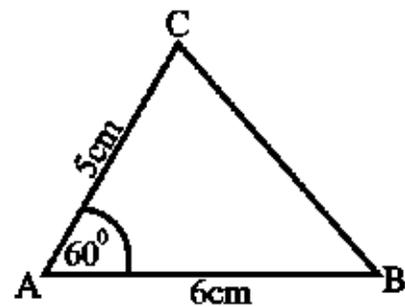08) Figure shows a rough sketch of a triangle.
    (i)   Using the straight edge and the pair of compass, construct the above triangle.
    (ii)   Construct the locus of the point moving equidistant to A and B.
    (iii)   Construct the bisector of the angle ABC.
    (iv)   Mark the intersection point of the above two constructions as O. Join OB.
    (v)   What type of triangle is OAB?

09) a) The interior angles of a triangle are in the ratio 2 : 3 : 5. Find the magnitude of the smallest angle.
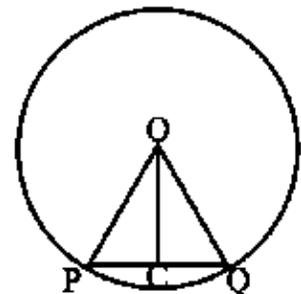
  b) O is the centre of the circle. C is midpoint of PQ.
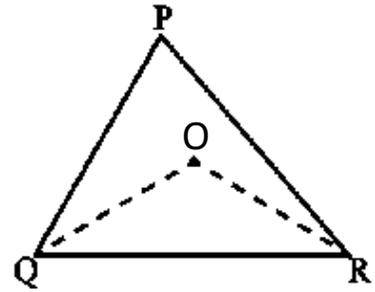   (i)   Copy down the diagram and mark all the information.
    (ii)   Prove that the triangle OPC and OQC are congruent.
    (iii)   Hence show that $O\hat{C}P = O\hat{C}Q$
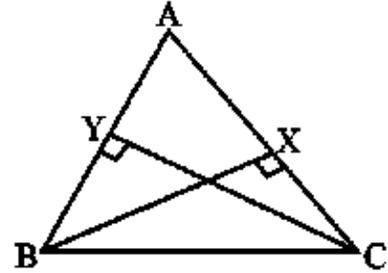   (iv)   Prove that $O\hat{C}Q = 90°$

10) a) In the triangle PQR , $Q\hat{P}R = 80°$. Bisectors of the angles $P\hat{Q}R$ and $P\hat{R}Q$ meet at O. Find the magnitude of $Q\hat{O}R$.

b) In the triangle ABC , BX and CY are perpendicular to AC and AB respectively. BX = CY.
   (i)   Prove that , CBX Δ≡ CBY Δ.
   (ii)   Hence show that , $A\hat{B}C = A\hat{C}B$.
   (iii)   Prove that ABC is an isosceles triangle.

11) a) PQRS is a rhombus. Its diagonals bisect at right angles.
      PR = 8cm , QS = 6cm.
   (i)   What is the relationship you use to find the length of a side of the rhombus.
   (ii)   Find the length of a side of the rhombus using that relationship.
   (iii)   Find the perimeter of the rhombus.
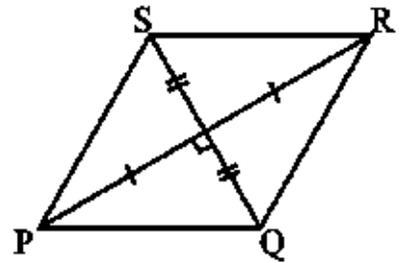
b) Perimeter of ABCD parallelogram is 40cm.
   (i)   Find the length of AB.
   (ii)   Find the area of ABCD.
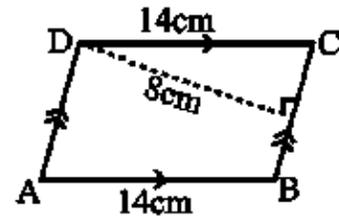
12) A fair die numbered form 1 to 6 is rolled and the side on top is recorded.
   (i)   Write the sample space (s) including all the possible outcomes.
   (ii)   Find n(s).
   (iii)   If A is the event of getting an odd number list out the elements of A.
   (iv)   Find P(A).
   (v)   What is the probability of getting a number greater than 4.