

संकलित परीक्षा - II, (2014-2015)

samastipur

SUMMATIVE ASSESSMENT - II

Code: FL05FT9

Class - IX MATHEMATICS Central Public School

Time allowed : 3 hours

Maximum Marks : 90

SECTION-A

Question numbers 1 to 4 carry one mark each.

1. If the graph of $kx + 4y = 12$, passes through point $(1, 0)$, find k . 1
2. If the graph of $2x + ky = 5$, passes through the point $(-2, 1)$, find k . 1
3. Area of $\triangle ABC$ is 14 cm^2 . If AD is median to side BC , find area $(\triangle ACD)$. 1
4. What is the ratio of the volume of cylinder and a hemisphere of equal radii and equal height. 1

SECTION-B

Question numbers 5 to 10 carry two marks each.

5. In $\triangle ABC$, X and Y are point on sides AB and AC respectively. If $\angle YXC = \angle BCX$, prove that $\text{ar}(\triangle BXC) = \text{ar}(\triangle BYC)$. 2
6. Draw any obtuse angle. Bisect it using compass. 2
7. In the figure, P and Q are mid-points of the sides AB and AC respectively of $\triangle ABC$. Also, D and E are mid-points of AP and AQ respectively. If $DE = 2.3 \text{ cm}$, then find the length of BC .



8. Find the radius of a sphere whose surface area is 616 sq cm . 2
9. In survey of 550 children aged 25-46 months. It was found that 175 like to eat potato rice. If a child is selected at random, find the probability that he/she does not like to eat potato rice. 2

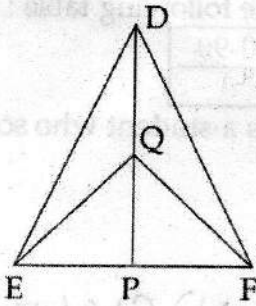
10. The marks obtained by the students of a class out of 100 is given in the following table : 2

Marks	30-40	40-50	50-60	60-70	70-80	80-90
Number of Students	22	28	32	40	20	8

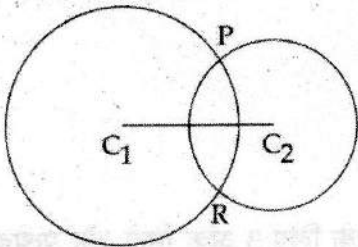
If a student is selected at random, find the probability that he/she is a student who scored between 50 and 70.

11. Draw the graph of the linear equation whose solutions are represented by the points whose sum of the coordinates is 5 units. Also find the area of the triangle formed by this graph and the axes. 3
12. Determine the value of b if $(-1, 10)$ is a solution of the equation $3x + by = 27$ Also find the coordinates of the point on its graph for which $x = 7$. 3

13. In $\triangle DEF$, P is mid - point of EF and Q is mid - point of DP. If ar $(\triangle DQF) = 6\text{cm}^2$, find ar $(\triangle EQF)$.



14. In the figure, two circles of radii x cm and y cm ($x > y$) intersect at two points P and Q respectively. If the distance 'd' between the centres of two circles is given by $d^2 = x^2 - y^2$, prove that the length of the common chord is $2y$ cm.



15. Draw a line segment AB of measure 6.4 cm. Construct its perpendicular bisector and verify it by actual measurement. 3

16. PQRS is a rectangle in which diagonal PR bisects $\angle P$ as well as $\angle R$. Show that : 3
- (i) PQRS is a square (ii) Diagonal QS bisects $\angle Q$ as well as $\angle S$.

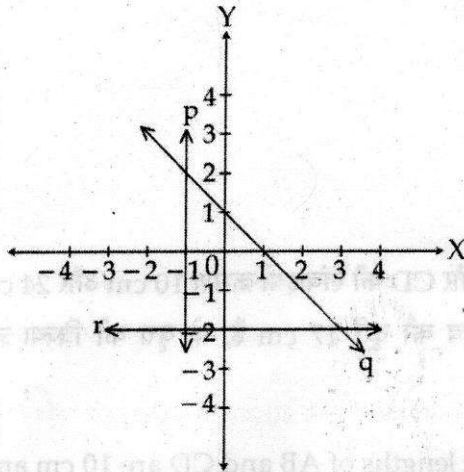
17. ABCD is a cyclic quadrilateral such that $\angle B = 5\angle D$ and $\angle C = 3\angle A$, find the measure of the each angle of the quadrilateral. 3

18. The ratio of the volumes of two spheres is 27 : 8. Find the ratio of their surface areas. 3

Question numbers 19 to 28 carry four marks each. **SECTION-D**

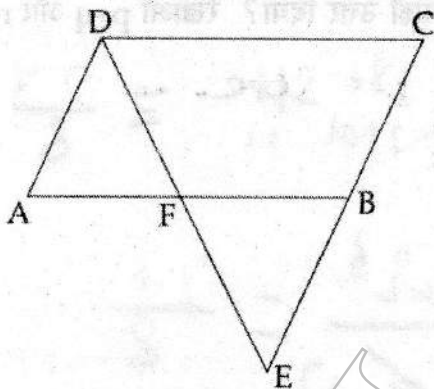
19. Aamir scored 40 marks in a test, getting 3 marks for each right answer and losing 1 mark for each wrong answer. If number of questions attempted right by him is x and that attempted incorrectly is y , then write the linear equation which satisfies this data. Also draw the graph for the same. 4
20. AB and CD are two parallel chords of a circle such that lengths of AB and CD are 10 cm and 24 cm respectively. If the chords are on opposite sides of the centre and the distance between them is 17 cm, find the radius of the circle. 4
21. Construct $\angle CAB = 75^\circ$ using compass. Now, construct $\frac{1}{2} \angle CAB$ and $2 \angle CAB$ by taking help of compass. 4

22 Write the equations of the lines p and r in following graph :

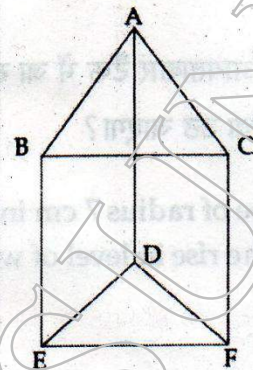


A student answered equation of line 'q' as $x + y = 1$. Did he answer correctly? Also, find the area enclosed between lines p, q and r.

23 In the given figure, ABCD is a parallelogram in which CB is produced to E such that $BC = BE$. The line segment DE intersects side AB at F. If $\text{ar}(\triangle ADF) = 4 \text{ cm}^2$, find the area of parallelogram ABCD.



24 In $\triangle ABC$ and $\triangle DEF$ of the given figure, $AB = DE$, $AB \parallel DE$, $BC = EF$ and $BC \parallel EF$. Vertices A, B and C are joined to vertices D, E and F respectively. Show that $\triangle ABC \cong \triangle DEF$.



25 A residential housing society is built in 4000 sq. m area. It has an underground tank to collect the rain water, the length, breadth and height of which are 50 m, 40 m and 4 m respectively. If it rains at the rate of 2 mm per minute for 5 hours, then calculate the depth of water in the tank. What value is depicted in this problem ?

26 A conical tent with basic radius 7 m has been made from a piece of canvas whose area is 551 m². Find the volume of the tent, assuming that all the stitching margins and wastage incurred while cutting amounts to approximately 1 m².

27 Water is flowing at the rate of 2.5 km per hour through a cylindrical pipe of radius 7 cm into a rectangular tank of length 25 m and 22 m width. In 5 hrs how much is the rise in level of water in the tank ? 4

28 Shirts are packed in Seven hundred boxes were examined for defective shirts and the results are given in the following table: 4

Number of defective shirts	0	1	2	3	4	5	6	Above 6
Frequency	400	180	48	41	18	8	3	2

One carton was selected at random. What is the probability that it has :

- (i) no defective shirt
- (ii) defective shirts are between 2 to 6
- (iii) defective shirts are less than 3
- (iv) defective shirts are more than 5