

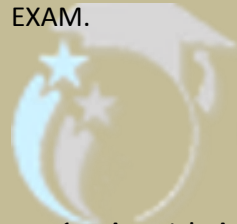
CBSE 12th Maths Sample Paper

This is the **7th Sample Paper** of Math Sample Paper series and you will find more sample Papers in the below mentioned links. We will soon update the computer science sample paper also.

GENERAL INSTRUCTIONS:

- (i) All the question are compulsory.
- (ii) The question paper consists of **29** question divided into three Sections A, B and C. Section A comprises of **10** questions of **one** marks each, Section B comprises of 12 questions for **four** marks each and Section C comprises of **7** question of **six** marks each.
- (iii) All question in Section A are to be answered in **one** word, **one** sentence or as per the exact requirement of the question.
- (iv) Use of calculator is not permitted.

*NOTE: THIS IS CBSE 12th MATHS SAMPLE PAPER FOR THE EFFECTIVE PREPARATION FOR 12th BOARD EXAM.



SECTION A

1. A matrix A of order 3×3 has determinant 8. What is the value of $|3A|$ [1 Mark]
2. Find the point on the curve $y = x^2 - 4x + 3$ where the tangent is parallel to x-axis. [1 Mark]
3. Write the formulae for the eccentricity of ellipse? [1 Mark]
4. Cartesian equations of a line AB are:
 $(2x-1/3) = (4-y/6) = (z-1/2)$
Write the direction ratios of a line parallel to AB. [1 Mark]
5. If matrix $A = \begin{bmatrix} 3 & 4 & 8 \end{bmatrix}$, write AA' , where A' is the transpose of matrix A. [1 Mark]
6. If the binary operation $*$ on the set of integers Z, is defined by $a*b = a + 3b^2$, then find the value of $4*8$? [1 Mark]
7. If A is an invertible matrix of order 3 and $|A| = 10$, then find $|\text{adj. } A|$. [1 Mark]
8. Find the value of $\int \sin x/x$. [1 Mark]
9. Find the value of x for which the vector $\hat{a} = 2i - 6j + 7k$ and $\hat{c} = 5i + 3j - xk$ are perpendicular to each other. [1 Mark]
10. Find the equation of the line perpendicular to y axis and passing through the origin. [1 Mark]

SECTION B

1. Using the method of integration find the area of region bounded by the line. **[4 Mark]**
 $3x-2y+1=0$
 $2x+3y-21=0$ and
 $x-5y+2=0$
2. Using the method of integration find the area of region bounded by the line- **[4 Mark]**
 $5x-3y+6=0$
 $2x^2-2x+6$ and
 $6x-3y=0$
3. Using matrices solve the following system of linear equation: **[4 Mark]**
 $x-y+3z=8$
 $3x+4y-4z=-4$
 $2x-y+3z=11$
4. Using elementary operation find the inverse of the following matrix: **[4 Mark]**

3	3	5
-1	2	2
2	4	3
5. A water tank has the shape of an inverted right circular cone with its axis vertical and vertex lower most. Its semi-vertical angle is $\tan^{-1}(1/2)$. Water is poured into it at a constant rate of 5 cubic meters per minute. Find the rate at which the level of the water is rising at the instant when the depth of water in the tank is 20m. **[4 Mark]**
6. A die is thrown again and again until three sixes are obtained. Find the probability of obtaining the third six in the sixth throw of the die. **[4 Mark]**
7. Using Rolle's theorem find the points on the curve $y = x^2+5$, $x \in [-2,2]$, where the tangent is parallel to the x axis. **[4 Mark]**
8. Solve the following differential equations:
 $dy/dx+y = \sin x - \cos x$ **[4 Mark]**
9. Using vectors prove that Medians of a triangle are concurrent. **[4 Mark]**
10. Using determinants, find the area of the triangle whose vertices are $(-2,7)$, $(-1,6)$ and $(-5,2)$. Are the given points collinear? **[4 Mark]**
11. The probability of a bullet hitting a target is $1/3$. How many minimum number of times it must be fired so that the probability of hitting the target at least once is more than 0.67 **[4 Mark]**
12. Find the probability of getting at least sum of 6 when 2 dice are thrown simultaneously. **[4 Mark]**

SECTION C

1. Find the volume of the largest cylinder that can be inscribed in a sphere of radius r . [6 Mark]

2. Three bags contain balls as shown in the table below:

BAG	NO OF WHITE BALL	NO OF BLACK BALL	NO OF RED BALL
1.	2	3	1
2.	5	1	4
3.	1	4	6

A bag is chosen at random and two balls are drawn from it. They happen to be black and red.

What is the probability that they came from 3 bags? [6 Mark]

3. A tank with rectangular base and rectangular sides, Open at the top is to be constructed so that its depth is 4 cm and volume is 12 meter cube . If building of tank costs Rs. 70 per sq. meter for the basis and Rs. 40 per sq. meter for sides, what is the cost of least expensive tank? [6 Mark]

4. Prove that the radius of the base of right circular cylinder of greatest curved surface area which can be inscribed in a given cone is half that of the cone. [6 Mark]

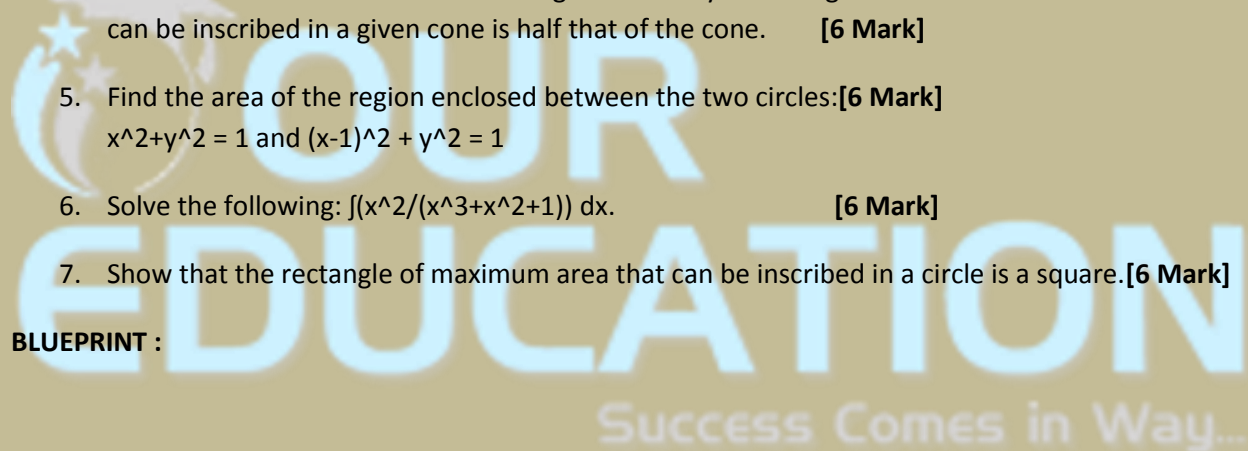
5. Find the area of the region enclosed between the two circles:[6 Mark]

$$x^2+y^2 = 1 \text{ and } (x-1)^2 + y^2 = 1$$

6. Solve the following: $\int (x^2/(x^3+x^2+1)) dx$. [6 Mark]

7. Show that the rectangle of maximum area that can be inscribed in a circle is a square.[6 Mark]

BLUEPRINT :



S. No.	Topics	VSA	SA	LA	Total
1. (a)	Relations and Functions	1(1)	4(1)	-	
(b)	Inverse Trigonometric Functions	1(1)	4(1)	-	10(4)
2. (a)	Matrices	2(2)	-	6(1)	
(b)	Determinants	1(1)	4(1)	-	13(5)
3. (a)	Continuity and differentiability	-	8(2)	-	
(b)	Applications of derivatives	-	4(1)	6(1)	
(c)	Integration	2(2)	4(1)	6(1)	
(d)	Applications of Integrals	-	-	6(1)	
(e)	Differential Equations	-	8(2)	-	44(11)
4. (a)	Vectors	2(2)	4(1)	-	
(b)	3-dimensional Geometry	1(1)	4(1)	6(1)	17(6)
5.	Linear - Programming	-	-	6(1)	6(1)
6.	Probability	-	4(1)	6(1)	10(2)
	Total	10(10)	48(12)	42(7)	100(29)

blueprint of class 12th maths paper

EDUCATION

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