

KENDRIYA VIDYALAYA GACHIBOWLI, HYDERABAD
MODEL PAPER 01 FOR FA – 1 (2016 – 17)
CLASS – X
MATHEMATICS

T.T. 1:30

M.M. 40

General Instructions:

1. All questions are compulsory.
2. Question paper is divided into four sections: Section A contains 4 questions each carry 1 mark, Section B contains 4 questions each carry 2 marks, Section C contains 4 questions each carry 3 marks and Section D contains 4 questions each carry 4 marks.

SECTION – A(1 marks each)

1. Express each of the following positive integers as the product of its prime factors: (i) 3825 (ii) 7429
2. Using comparing the ratios of coefficient, find out whether the pair of linear equations are consistent, or inconsistent : $3x + 2y = 5$; $2x - 3y = 7$
3. If $(k, -k)$ is a solution of the equation $2x + 3y - 22 = 0$, then find the value of k .
4. Find a quadratic polynomial, the sum and product of whose zeroes are -3 and 5 respectively.

SECTION – B(2 marks each)

5. In a morning walk, three persons step off together. Their steps measure 80 cm, 85 cm and 90 cm respectively. What is the minimum distance each should walk so that all can cover the same distance in complete steps? How is morning walk useful for good health?
6. Solve : $x + y = 15$ and $2x - 3y = 4$
7. Explain why $7 \times 11 \times 13 + 13$ and $7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 + 5$ are composite numbers.
8. A group consists of 12 honest people and 8 dishonest people. Write a quadratic polynomial whose roots are equal to number of honest people and number of dishonest people. Which value do you prefer?

SECTION – C(3 marks each)

9. Find the zeroes of the quadratic polynomial $5t^2 + 12t + 7$ and verify the relationship between the zeroes and the coefficients.
10. Solve $2x + 3y = 11$ and $2x - 4y = -24$ and hence find the value of 'm' for which $y = mx + 3$.
11. Find the quotient and remainder when $4x^3 + 2x^2 + 5x - 6$ is divided by $2x^2 + 3x + 1$.
12. Prove that $7 + 3\sqrt{2}$ is an irrational number.

SECTION – D(4 marks each)

- 13.** Draw the graphs of the equations $x - y + 1 = 0$ and $3x + 2y - 12 = 0$. Determine the coordinates of the vertices of the triangle formed by these lines and the x-axis, and shade the triangular region.
- 14.** Places A and B are 100 km apart on a highway. One car starts from A and another from B at the same time. If the cars travel in the same direction at different speeds, they meet in 5 hours. If they travel towards each other, they meet in 1 hour. What are the speeds of the two cars? While driving, the driver should maintain the speed limit as allowed. Comment
- 15.** Use Euclid's division lemma to show that the cube of any positive integer is of the form $9m$, $9m + 1$ or $9m + 8$.
- 16.** If the polynomial $x^4 - 6x^3 + 16x^2 - 25x + 10$ is divided by another polynomial $x^2 - 2x + k$, the remainder comes out to be $x + a$, find k and a .
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