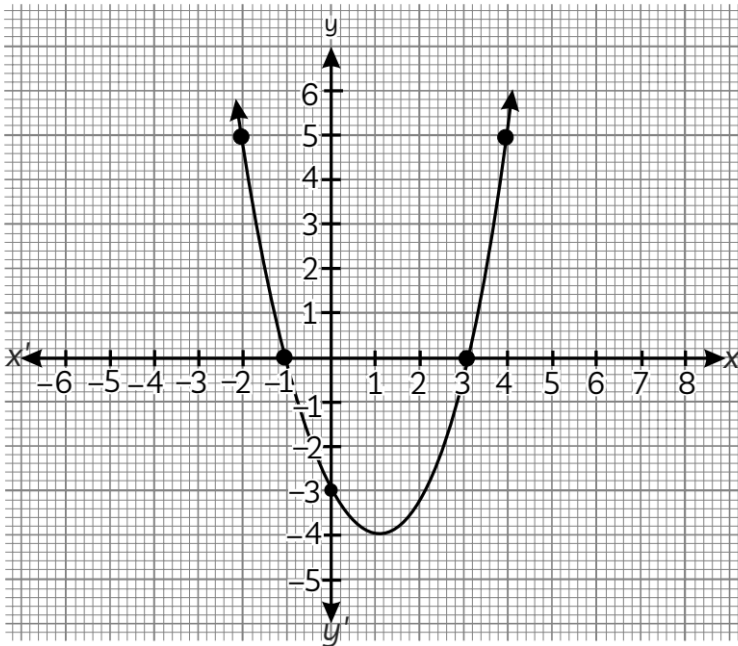| Date:07/06/24 GRADE: X	MT - 01 (2024-25) MATHEMATICS	Max marks: 20 Time: 50 Minutes

General Instructions:

1 All questions are compulsory.

2. Marks are indicated against each question.

Qn. No	QUESTIONS 1 TO 5 CARRY ONE MARK EACH	Marks allocated
1	What is the greatest possible speed at which a man can walk 52 km and 91 km in an exact number of hours? (a) 17 km/hr (b) 7 km/hr (c) 13 km/hr (d) 26 km/hr	1
2	If -4 is a zero of the polynomial $x^2 - x - (2k+2)$ then the other zero is (a) 3 (b) 4 (c) 5 (d) 7	1
3	For what value of k, do the equations $3x - y + 8 = 0$ and $6x - ky = -16$ represent coincident lines? (a) $\frac{1}{2}$ (b) $\frac{-1}{2}$ (c) 2 (d) -2	1
4	A box contains 25 cards numbered from 1 to 25. A card is drawn at random from the bag. The probability that the number on the drawn card is divisible by 2 and 3 is (a) $\frac{1}{5}$ (b) $\frac{3}{25}$ (c) $\frac{4}{25}$ (d) $\frac{2}{25}$	1
5	If a die is thrown once, the probability of getting a composite number on the die will be (a) $\frac{1}{2}$ (b) $\frac{2}{3}$ (c) $\frac{1}{3}$ (d) 0	1

	QUESTIONS 6 AND 7 CARRY TWO MARKS EACH	
6	If α and β are the zeroes of the polynomial $x^2 - 5x + 6$ then find the value of $α^2 + β^2$	2
7	Given that $\sqrt{2}$ is irrational, prove that $(5 + 3\sqrt{2})$ is an irrational number.	2
	QUESTIONS 8 AND 9 CARRY THREE MARKS EACH	
8	Solve the following system of equation graphically. Also find the points where the lines represented by the given equations intersect the X – axis. $x + 2y = 4$ and $x - y = 7$	3
9	From a pack of 52 playing cards, Jacks, Queens, and Kings of red color are removed. From the remaining, a card is drawn at random. Find the probability that the card drawn is: (i) a black king, (ii) a card of red color, (iii) a card of black color	3
10	**CASE STUDY** *Due to heavy storm, an electric wire got bent as shown in the figure. It followed a mathematical shape. Answer the following questions below:* 	

(A)   Name the shape in which the wire is bent.   1

    (a) Spiral   (b) Ellipse

    (c) Linear   (d) Parabola

(B) How many zeroes are there for the polynomial (shape of the wire)?   1

    (a) 2   (b) 3

    (d) 1   (d) 0

(C) The zeroes of the polynomial are: 1

    (a) –1, 5   (b) –1, 3

    (c) 3, 5   (d) –4, 2

(D) What will be the expression of the polynomial?   1

    (a) $x^2 + 2x - 3$ (b) $x^2 - 2x + 3$

    (c) $x^2 - 2x - 3$ (d) $x^2 + 2x + 3$

(E)   What is the value of the polynomial if $x = -1$?   1

    (a) 6   (b) – 18

    (c) 18   (d) 0