

National Education Policy (NEP) 2020 has restructured curriculum and pedagogy in schools so as to make teaching and learning holistic, integrated, enjoyable and engaging. It lays emphasis on experiential learning and a shift towards competency-based learning and education.

Ratua Sagar has always been the pioneer in implementing the changes in course or curriculum for classes 9–12, whenever these changes are introduced by the government, the CBSE, the NCERT or other Boards. We updated our books and provided support for:

- COMMUNICATIVE APPROACH
- NCF (2005)
- CCE (2010)
- NEP (2020)
- CBA (2021)

All our books are fully compliant with NEP (2020) guidelines. Here we present A Textbook of Mathematics 9 & 10.

Focus areas of NEP 2020

In A Textbook of Mathematics 9–10

Competency-based Learning is a learning approach where learners move from one learning level to a higher one based on their demonstration of knowledge rather than based on time spent on a specific course.



Competency-based Learning

Competency-based Questions like Case Study and Assertion-Reasoning:

- BK 9 Supplement, pp. 1, pp. 12
- BK 10 Supplement, pp. 5, pp. 16

Holistic Development Approach

is an approach that seeks to fully activate all aspects of the learner's personality (intellect, emotions, imagination, body) for more effective and comprehensive learning.



BK 9, pp. 12.22

Experiential

by doing" and by

reflecting on the

experience.

Experiential Learning

Art Integration:

BK 9 Supplement, pp. 16

BK 10 Supplement, pp. 23

BK 9 pp. L.1, L.2

BK 10 pp. L.1, L.2

In the Lab (Maths Lab Activities):

Learning is an engaged learning process whereby

students "learn

1. Paste a graph paper on the white drawing sheet and prepare a grid on it. 2. Mark numbers on the two mutually perpendicular line

IN THE LAB

ACTIVITY 1

- 3. Cover the grid with a cellophane sheet.
- 4. Make a hole at O and insert a thread which is long enough.

adhesive, thick thread and pen/pencil

PROCEDURE:

5. Tie a knot at the inserted end of the thread and pull it so as to have enough length of it to cover all the dots.

ROOTS OF NATURAL NUMBERS AS LINE SEGMENTS



segment

BK 9, pp. L.1

Problem-solving allows students to develop understanding and explain the processes used to arrive at solutions, rather than remembering and applying a set of procedures.



BK 10, pp. 14.52



(b) 16.5, 44.5 (c) 17.5, 45

(a) 16, 45.5

BK 10, pp. 16.54

(d) 17,44



Hence, PQ = 12 cm.

BK 10, pp. 12.4

Critical Thinking is the ability to think clearly and rationally, understanding the logical connection between ideas.

Formative Assessment is

a process of evaluating the students' knowledge as they learn. It is a method of on-going assessment.



Formative Assessment

	Exercises:
BK 9	pp. 2.22, pp. 10.16
BK 10	pp. 12.19, pp. 12.25
Check	Your Understanding:
BK 9	pp. 3.14, pp. 9.28
BK 10	pp. 2.40, pp. 16.54
Unit Test	
BK 9	pp. 8.46, pp. 15.16
BK 10	pp. 2.45, pp. 2.47
Test Papers:	
BK 9	Test Papers, pp. 1, pp. 12
BK 10	Test Papers, pp. 1, pp. 12

Listed here are just a few illustrative examples of NEP-feature pages. We will be happy to provide the other page references.

Support Available

Teacher's Companion Worksheets WORKSHEET **15** HAPTER 4 Quadratic Equations CHAPTER 15 - PROBABILITY $2x^2 + 2(x^2 - 2x + 1) - 5x^2 + 5x = 0$ $2x^2 + 2x^2 - 4x + 2 - 5x^2 + 5x = 0$ $-x^2 + x + 2 = 0$ EXERCISE 4A 1. Probability of an event can be (a) $\frac{12}{7}$ (b) 0.7 (c) -0.5 (d) 1.25 2. The probability of happening of an event is 65%. The probability of event is (a) 65 (b) 650 (c) 0.65 (d) 0.065 Hence, the given equation is a quadi) Let one of the numbers be x. Given, the sum of number is 18. .: The other number is 18 – x. Given, the sum of the reciprocals of 1 In an experiment, the sum of probabilities of different events in Hence, the given equation is a quadratic equation. $x^2 + x - 12 = 0$ is of the form $ax^2 + bx + c = 0$. Hence, the given equation is a quadratic equation. (a) 0.6 (b) 1 (d) -5 $(d) \frac{11}{14}$ Hence, the given equation is a quadratic equati $x^2 - 3x - 2\sqrt{x} - 1 = 0$ is not of the form $n^2 + bx + c = 0$ Hence, the given equation is not a quadratic equa- $x^2 - 5x = 0$. Since $x^2 - 5x$ is a quadratic equation hence, the given equation is a quadratic equation. 4. In a class of 80 students, these are 110% girls, then the number of girls in the class is (a) 80 (b) 40 (c) 55 (d) None of these ale of the r 5. A die is thrown once, a number is noted, then the probability that it is a prime number is $\frac{1}{x} + \frac{1}{18-x} = \frac{1}{4}$ ⇒ (b) $\frac{1}{2}$ (a) $\frac{1}{6}$ (c) $\frac{4}{6}$ $(d) = \frac{2}{4}$ 6. In a class there are x boys and y girls. A str (a) $\frac{y}{x}$ (b) $\frac{x}{x+y}$ (c) o ident is selected at $\frac{18 - x + x}{x(18 - x)} = \frac{1}{4}$ ndom, then probability of selecting a girl is (v) $x^2 - \frac{1}{x^2} = 3$ $(d) \frac{y}{x+y}$ (c) $\frac{x}{y}$ $\frac{18}{18x - x^2} = \frac{1}{4}$ \Rightarrow $x^4 = 3x^2 = 1 = 0$ Since, $x^4 = 3x^2 = 1$ is a polynomial of degree 4 80 bulbs are selected at random from a lot and their time (in hours) is reco table given below: rded in the form of a frequ $x^2 - \frac{1}{x^2} = 3$ is not a quadratic equation. Life time in hours Frequency $(vi) \frac{x}{2} + \frac{6}{x} = 5$ $y_{1}^{2} \frac{y_{1}^{2}}{2} = -3$ $\Rightarrow x^{2} + 12 = 10\pi$ $\Rightarrow x^{2} - 10\pi + 12 = 0,$ which is of the form $m^{2} + h\pi + c = 0.$ Hence, the given equation is a quadratic equalt $0 + (2\pi) + 2\pi + 2 = 5\pi$ $\Rightarrow 2x^{2} + 2x = 5\pi$ $\Rightarrow 2x^{2} + 2x = 0,$ which is of the form $m^{2} + h\pi + c = 0.$ Hence, the rivene equation is a quadratic equal 700 900 25 o. Iratic equation Number of sweets left with Vihaan after he ate up 5 sweets = 50 - x - 5 = 45 - xThe probability that bulbs selected randomly from the lot has less life than 900 hours is (a) $\frac{9}{16}$ (b) $\frac{5}{16}$ (c) $\frac{11}{16}$ (d) $\frac{25}{16}$ Given, product of sweets left with Tanay and Vihaan $\begin{array}{l} a^{22} + kx + c = 0. \\ Hence, the given equation is a quadratic equation \\ j_1 s^{2} - 4x^2 - 7x + 3 = 0. Since x^3 - 4x^2 - 7x + 3 is a \\ polynomial of degree 3, hence, the given equation is not a quadratic equation. \\) (5x + 1) (2x + 3) = (10x + 1) (x + 2) \\ 0 - 10x^2 + 17x - 3 = 10x^2 + 21x + 2 \\ \end{array}$ = 351 (x - 5)(45 - x) = 331 $5 - 45x - 225 - x^2 + 5x = 351$ $5 - 3x^2 - 30x + 576 = 0$ Add to start with satisfy the quadratic equation of a sevent start with satisfy the quadratic equation of a sevent start with satisfy the problem rathematically. et x and x + 1 be the required consecutive nature mathematically. Tow coins are tossed simultaneously. Find the probability of getting one or more tail. 9. A die is thrown. Find the probability of getting an odd number 10. A die is tossed 100 times and the data is reco ded as follows Outcome 1 2 3 4 Frequency 20 15 20 15 4x - 1 = 0 4x - 1 is a linear polynomial cc, the given equation is not a quadratic equation (a) What is the probability that we get an even number in a (b) What is the probability of getting a number less than 3? Let x and x squares of two co (x) $\frac{x}{x-1} + \frac{x-1}{x} - \frac{5}{2} = 0$ Given, the sum o numbers is 313 $x^2 + (x + 1)^2 = 313$ $2x^{2} + 2(x - 1)^{2} - 5(x)(x - 1) = 0$ Teacher's signature: Date: Name: Class: IX

BK 10, THB, Ch 4, pp. 1

BK 9, Worksheets, Ch 15, pp. 1



Forty years ago, Ratna Sagar made a commitment to education with this pledge:

66 Ratna Sagar stems from a deeply-felt desire to present only the finest in books ... (our books) will represent exemplary standards of book publication and will embody the highest levels of teaching methodology, design and presentation, and pedagogical effectiveness. ??

We are proud to have lived up to our pledge. And we promise to continue doing so.

Education, Our Mission!