

A landmark document, **the National Education Policy 2020 (NEP)** is a framework that emphasizes the holistic development of learners through experiential learning, arming them with twenty-first-century skills.

Ratna Sagar has always been at the forefront whenever any change is 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)
- NIPUN BHARAT (2021) SAFAL (2021)

All our major courses are fully compliant with NEP 2020 guidelines. Here we present A Textbook of Mathematics 6–8.

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## **Some Major Skills** & Focus Areas

## In A Textbook of **Mathematics 6–8**

Creativity refers to new ways of seeing or doing things and includes generating new ideas, flexibility, originality, and building on others' ideas.

- 21st Century Skills Handbook by CBSE

Creativity

BK 7 Activities in pp. 186, 297

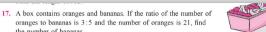
BK 6 Activities in pp. 268 (Ch 4), 272

(Ch 6), 300 (Ch 13) 302 BK 8 Activities in pp. 313, 314,

317 (Ch 11), 318 (Ch 12)

(Ch 7), 273 (Ch 10), 275 (Ch 14)

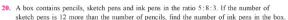
#### BK 6, p. 206 (HOTS)



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the number of bananas 18. The ratio of metal A and metal B in an alloy is 5:7. Find the weight of metal A in 14.4 g of the alloy.

19. The flour in a bag is divided into three portions in the ratio 2:5:7. Frank Flower If the smallest portion weighs 40 kg, how much heavier is the largest portion than the smallest portion?



### Find the ratio of the number of prime numbers to the number of composite numbers between the numbers 1 and 20.

- The ratio of students in three sections A, B and C of class VI is 2:3:4. The total number of students in these three sections is 270. From section C, if 20 students are shifted to section A and 10 to section B then what is the new
- ratio of the students in the three sections of class VI? 3. A total of ₹ 700 is divided among A, B and C such that the mone

received by A and B is in the ratio 2:3 and the money received by C and B is in the ratio 5:4. Find the amount received by each of them.

### **Critical Thinking**

All HOTS questions & puzzles: BK 6 pp. 179, 200, 206, 240 (Puzzle)

pp. 14, 31, 95, 268 (Puzzle), BK 7

271 (Magic Square)

BK 8 pp. 32, 85, 135, 238,



#### Collaboration

BK 6	pp. 269 (Ac 2), 271 (Ch 6),
	274 (Ac 2)
BK 7	pp. 108 (Ac), 111 (Ac), 298 (Ac
вк 8	pp. 183 (Ac), 206 (Ac),
	281 (Project),
	316 (Ch 6 & 9)

#### **Collaboration** is the ability to effectively work together with others. 11

- 21st Century Skills Handbook by CBSE

2. Observe the following pattern.  $2^3 - 1^3 = 1 + 2 \times 1 \times 3$  $3^3 - 2^3 = 1 + 3 \times 2 \times 3$  $4^3 - 3^3 = 1 + 4 \times 3 \times 3$ Using the above pattern find the value of 893 - 883.

#### PROJECT

Conduct a survey and collect data from 100 students of Class VIII of your school about their preference of activity among sports, music, dramatics, debating and painting. Prepare a frequency distribution table and answer the following questions.

- i. Which activity is preferred by most number of students?
- ii. How many students prefer sports over music?
- iii. Which activity is preferred by least number of students? iv. Is there any activity which is liked by equal number of students?

BK 8, p. 281

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Critical Thinking is the ability to think clearly and rationally and understand the logical connections between ideas; to analyze facts and come to a conclusion.

#### PROBABILITY

There are many situations in life, when we are unable to predict the exact result and we end up making statements which use the terms *likely, most probably, chance, possible, may,* etc. For example

. It is likely to rain today.

2. Chances of the Indian team winning the World Cup are very high.

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SOME TERMS RELATED TO PROBABILITY

Outcome: Any one of the possible results of some activity is known as its outcome Experiment: An operation which yields well-defined outcomes is called an experiment

#### BK 7, p. 65

Conceptual

Understanding refers to an integrated and functional grasp of ideas.

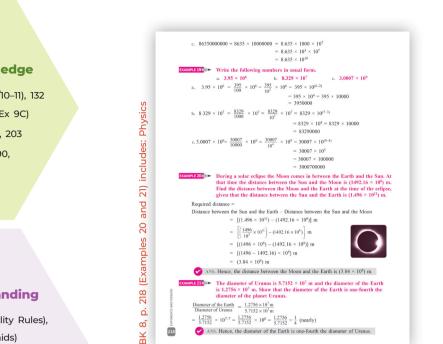


#### **Problem-solving**

- BK 6 pp. 8 (Ex 1A), 29 (Mental Maths), 170 (Checkpoint) 259
- BK 7 pp. 27 (Ex 2A), 47, 68, 95, 282
- BK 8 pp. 125 (Ex 7B), 141 (Ex 8B), 183 (Checkpoint),
  - 215 (Mental Maths), 301

Ch = Chapter; Ac = Activity

SKILLS – page 2 FOCUS AREAS - page 3



#### Multidisciplinary Approach

involves several different subjects of study.

#### **Experiential Learning**

- BK 6 Activities in pp. 175, 267 (Ch 3), 271 (Ch 6), 273 (Ch 10)
- BK 7 Activities in pp. 108, 111, 120, 186
- **BK 8** Activities in pp. 190, 206, 319 (Ch 14), 320 (Ch 17)



#### **Multidisciplinary Approach**

- BK 6 pp. 14 (Checkpoint/1), 120 (Checkpoint/1), 248 (Project)
- BK 7 pp. 13 (Example 12), 18 (Example 21), 19 (HOTS), 111 (Biography), 261 (C2 and C4)
- pp. 87 (Ex 14), 119 (Hardy-Ramanujan BK 8 number), 146 (GST), 218 (Examples 20 & 21), 287 (Project)

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

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#### **Application of Knowledge**

- pp. 58 (Ex 3I), 114 (6C/10-11), 132 BK 6 (Checkpoint/1-3), 162 (Ex 9C) BK 7 pp. 9 (1A/14-15), 80, 115, 203
- BK 8 pp. 34 (Exercise 2B), 90, 156, 210, 227 (4-18)



#### **Conceptual Understanding**

- BK 6 pp. 43 (More Divisibility Rules), 100 (Prisms & Pyramids)
- BK 7 pp. 65 (Probability), 70 (Forming an equation), 111 (Pythagoras theorem), 150 (Simple interest)
- BK 8 pp. 146 (GST), 178 (Maps), 232 (Time and work), 261 (Distance-time graph)

#### **66** Experiential Learning is

learning imbibed through observing, understanding, practising and experiencing.

- 21st Century Skills Handbook by CBSE

#### RIGHT-ANGLED TRIANGLES AND PYTHAGORAS THE

Pythagoras, a Greek philosopher and mathematician of sixth century B.C., provided the proof for a very important and useful property of right-angled triangles. Athough this property was known to people of many other countries including Indian mathematician Baudhayana, it was named as *Pythagorus theorem* after him as he was the first to discover its proof. PYTHAGORAS THEOREM

Thus, if

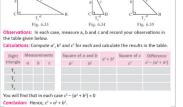
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statement: In a right triangle, the square of the hypotenuse is equal to the sum of the squares of he other two sides. Thus, if ACB is a right-angled triangle, in which  $\angle C =$  right angle, so that AB is the hypotenuse and AC and BC are the sides containing the right angle, then



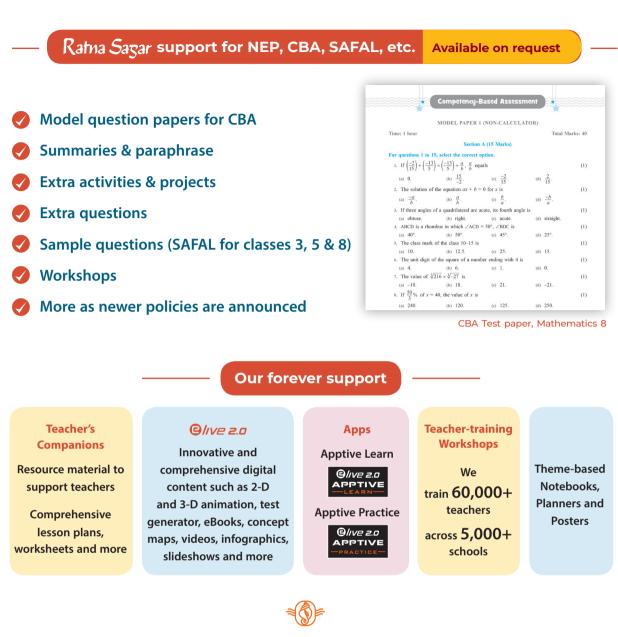
 $AB^2 = BC^2 + AC^2$ AB = c, BC = a and AC = b, then  $c^2 = a^2 + b^2$ Draw any three right triangles say  $T_{sr}$ ,  $T_{z}$  and  $T_{sr}$ . Label each of the triangles as  $\triangle ACB$  with  $\angle C$  as the right angle.



BK 7, p. 111

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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!**

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