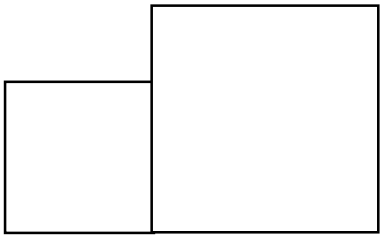
Prabhutwa Spardha Model Answers 2026 Std. 5

Question	Step-wise solution
Q. 1] If a two-digit number is multiplied by the sum of its digits, the product is 988. Find the number.	988 = 4 × 247 = 2 × 2 × 13 × 19 988 = 52 × 19 or 76 × 13 or 26 × 38 Only for the number 76, the sum of the digits is 13 and 76 × 13 = 988 ∴ the number is 76
Q. 2] Draw a rectangle PQRS in which PQ = 4 cm and QR = 3cm. Draw its diagonal PR and measure its length. Also, draw a square PRAB. Find the perimeter of the pentagon PQRAB so formed.	Drawing rectangle PQRS and diagonal PR. measuring l(PR) = 5 cm [4.9 < l(PR) < to 5.1 acceptable.] Drawing the square PRAB Perimeter of the pentagon PQRAB = 4 + 3 + 5 + 5 + 5 = 22 cm
Q. 3] I asked Ramrao, the ages of his two sons. He said, "The sum of their present ages is 60 years. When I was 40 years old, the ages of my sons were 8 and 12." What are the present ages of Ramrao and his sons?	When Ramrao was 40 years old, sum of the ages of sons was = 8 + 12 = 20 years. ∴ difference between Ramrao's age and total ages of his sons was 20 years, then. As the difference remains same, Ramrao's present age = 40 + 20 = 60 years. Present ages of the sons are 8 + 20 = 28 years and 12 + 20 = 32 years.
Q. 4] In a shop the following offers are available on a product. Offer 1: 25% discount on the printed price. Offer 2: Buy 3, get 1 free. Offer 3: Buy 1, get 50% off on the 2^{nd}. Offer 4: Buy 5, get 2 free. Find, which offer is the most beneficial for the customers?	Offer 1: Discount = 25%. If Rs. 100 is the printed price, S.P. of each product = Rs. 75 Offer 2: If Rs. 100 is the printed price of each product, 4 products for Rs. 300. ∴ S.P. of one product = Rs. 75. ∴ discount = 25% Offer 3: If Rs. 100 is the printed price of each product, 2 products for Rs. 150. ∴ S.P. of each product = Rs. 75. ∴ discount = 25% Offer 4: if Rs. 100 is the printed price of each product, 7 products for Rs. 500. S.P. of each product = 500 ÷ 7 = Rs. 71.43. Discount = 28.57%, which is maximum.

Q. 5] A four-digit number having all different digits is such that the sum of the first two digits is a square number, the sum of the first three digits is a square number and the sum of all four digits is a square number. Find all such numbers.	Pairs having sum of the digits a square number are (1, 0), (1, 3), (1, 8), (3, 1), (3, 6), (4, 0), (4, 5), (5, 4), (6, 3), (7, 9), (8, 1), (9, 7) So, possible 4-digit numbers are {1035, 1087}; {1305, 1350, 1357}, {{1807, 1870, 1879}; {3105, 3150, 3157}; {3607, 3670, 3679}; {4057}; {4507, 4570, 4579}, {5407, 5470, 5479}, {6307, 6370, 6379}, {8107, 8170, 8179} [27 numbers in all if zero is taken.] [8 numbers if zero is not taken]
Q. 6] If $\frac{58}{11} = 4 \times A + 0.5 \times B + \frac{C}{11}$ where A, B, C are natural numbers, find the values of A, B, C. Then, express the fraction $\frac{58}{11}$ as a recurring decimal fraction.	$\frac{58}{11} = 5\frac{3}{11} = 4 \times A + 0.5 \times B + \frac{C}{11}$ $\therefore\ 4 \times A + 0.5 \times B = 5$ and $\frac{3}{11} = \frac{C}{11}$ $\therefore\ c = 3.$ $\therefore\ 4 \times A + 0.5 \times B = 5 = 4 + 1$ $\therefore\ A = 1$ and $B = 2$ $\frac{58}{11} = 5.27272727\text{---} = 5.\overline{27}$
Q. 7] The total area of the two squares shown in the figure is 468 sq. units and total length of the base is 30 units. Find the side of each square, if they are whole numbers. 	Area of a square = side × side ∴ let's find two numbers such that, their sum = 30 and sum of their squares = 468 $484 > 468 > 441\ \therefore\ 22 > \sqrt{468} > 21$ both the numbers must be squares of numbers less than 22, that means, {1, 4, 9 16 --- 441} Consider the pairs having at least one square number such as 468 = (441 + 27), (400 + 68), (361 + 107), (324 + 144), (289 + 179), (256 + 212) --- (9 + 459), (4 + 464), (1 + 467) Out of them only one pair (324 + 144) has both the square numbers with the sum 468. $\therefore\ 468 = 324 + 144 = 18^2 + 12^2$ ∴ the side of the small square = 12 units; the side of the big square = 18 units.
Q. 8] Some students have arrived at a lake for boating excursion. There are some boats	(Number of boats × 8) + 6 = No. of students (Number of boats × 10) – 8 = No. of students ∴ (No. of boats × 8) + 6

aside the lake. The number of students is such that, if 8 students are accommodated in a boat, 6 students are left behind. But if 10 students are accommodated in a boat, there is still room for 8 students. How many boats are there and what is the number of students participating the excursion?	= (No. of boats × 10) – 8 ∴ (No. of boats × 10) – (No. of boats × 8) = 6 + 8 ∴ Number of boats × 2 = 14 ∴ Number of boats = 7 ∴ Number of students = (7 × 8) + 6 = 62 or (7 × 10) – 8 = 62 [If the number of boats is x, then 2x = 14. So, x = 7 and 8x + 6 = 62]
Q. 9]15 marbles are to be split into 4 groups such that each group has different number of marbles. Write all the possible ways in which such groups of marbles are formed.	Sum of 4 different numbers = 15 15 can be expressed as 6 + 9, or 9 + 6, or 7 + 8, or 8 + 7 If 15 = 6 + 9 = 1 + 2 + 3 + 9, Group (1) = {1, 2, 3, 9} If 15 = 7 + 8 = 1 + 2 + 4 + 8, Group (2) = {1, 2, 4, 8} If 15 = 8 + 7 = 4 + 3 + 1 + 7, Group (3) = {1, 3, 4, 7} If 15 = 8 + 7 = 5 + 2 + 1 + 7, Group (4) = {1, 2, 5, 7} If 15 = 9 + 6 = 5 + 3 + 1 + 6, Group (5) = {1, 3, 5, 6} If 15 = 9 + 6 = 4 + 3 + 2 + 6, Group (6) = {2, 3, 4, 6}
Q. 10] Ganesh had some amount. He purchased books of two-third of the amount and some notebooks of one-third of the remaining amount. Then the amount left with him was Rs. 360. How much amount did he have initially?	If Ganesh's amount is divided into 9 parts, 6 parts are spent on purchasing books. ∴ 3 parts remain. Its one-third = 1 part, which is spent on purchasing notebooks. ∴ 6 + 1 = 7 parts are spent out of 9. ∴ 2 parts remain and their actual value = 360 ∴ value of 1 part = 360 ÷ 2 = 180 ∴ value of total 9 parts = 180 × 9 = 1620 So, Ganesh had Rs. 1620 initially.
Q. 11] Deepak, Prashant, Anand are friends. Each one of them draws 2 cards from 7 cards that are numbered 2, 4, 6, 8, 10, 12, 14.	Sum of the numbers on Deepak's cards = 22. ∴ 22 = 14 + 8 or 12 + 10 Sum of the numbers on Prashant's cards = 10 ∴ 10 = 6 + 4 or 8 + 2 Sum of the numbers on Anand's cards = 14 ∴ 14 = 12 + 2, or 10 + 4, or 8 + 6

The sum of the numbers on Deepak's cards is 22; on Prashant's cards is 10 and on Anand's cards is 14. Who has drawn which cards?	Repetition of any number is not possible. ∴ Deepak has drawn cards having the numbers 14 and 8; Prashant has drawn cards having the numbers 6 and 4 Anand has drawn cards having the numbers 12 and 2
Q. 12] 72 villages in a district collected Rs. A67B4 under the small saving scheme, where A and B are digits. If the amounts collected from each of the villages are equal, find the amount collected by each village. (Find all possible answers)	A67B4 should be divisible by 72. ∴ it is divisible by 8 and 9. Applying the test of divisibility of 8, 7B4 must be divisible by 8. The numbers 704, 744 and 784 are divisible by 8 ∴ digit B can be 0, 4 or 8 ∴ the numbers can be A6704, A6744, A6784 Applying the test of divisibility of 9, A6704 will be divisible by 9 if A = 1 A6744 will be divisible by 9 if A = 6 A6784 will be divisible by 9 if A = 2 ∴ the numbers are 16704, 66744, & 26784. Each village collected 16704 ÷ 72 = Rs. 232; or 66744 ÷ 72 = Rs. 927; or 26784 ÷ 72 = Rs. 372.
Q. 13] Two basketballs and three volleyballs cost Rs 1950. Four basketballs and five volleyballs cost Rs 3550. What is the cost of each type of ball?	2 basketballs and 3 volleyballs cost Rs. 1950 ∴ multiplying by 2, 4 basketballs and 6 volleyballs cost 1950 × 2 = 3900 rupees. But 4 basketballs and 5 volleyballs cost Rs 3550. ∴ by subtraction, 1 volleyball costs 3900 – 3550 = 350 rupees. ∴ 3 volleyballs cost 350 × 3 = Rs. 1050 ∴ 2 basketballs cost 1950 – 1050 = Rs. 900 and 1 basketball costs Rs. 450
Q. 14] The letters A, B, C, D, E, F are to be replaced by the numbers 2, 4, 5, 6, 8, and 9 in the given array so that the sums of the numbers in each of the 2 rows and 2 columns are to be equal.	Since two columns have 3 numbers, values of C and D must be the highest. So, they can be 8 or 9. 1 + D + 10 = 7 + C + 3 ∴ D + 11 = C + 10 ∴ if D = 9, C = 10 but 10 cannot be repeated. ∴ if D = 8, C = 9 is possible Then, sum of the digits in column 1 and column 2 will be 19

Find which letter should be replaced by which number. 7 A B 1 C D 3 E F 10	Also, 7 + C + 3 = 7 + A + B + 1 then, 7 + A + B + 1 = 7 + 9 + 3 = 19 ∴ A + B = 11 ∴ A = 6 and B = 5 or A = 5 and B = 6 Also, 7 + C + 3 = 3 + E + F + 10 then, 3 + E + F + 10 = 7 + 9 + 3 = 19 ∴ E + F = 6 ∴ E = 2 and F = 4 or E = 4 and F = 2
Q. 15] A fruit seller purchased 150 mangoes from a farmer at the rate 320 rupees per dozen. He had to spend 500 rupees on transport. In transport one dozen mangoes got spoiled. He sold the remaining mangoes at the rate 450 rupees per dozen. what was his profit per dozen? what was the profit percentage?	150 = 12.5 dozen. ∴ the C. P. = 320 × 12.5 = Rs. 4000 Rs. 500 are spent on transport. ∴ total C. P. = 4000 + 500 = Rs. 4500 1 dozen mangoes were spoiled. ∴ 11.5 dozen mangoes were sold. ∴ S. P. = 450 × 11.5 = Rs. 5175 ∴ profit = S.P. – C. P. = 5175 – 4500 = Rs. 675 ∴ profit per dozen = 675÷12.5 = Rs. 54 The profit percentage = $\frac{\boldsymbol{Total\ profit}}{\boldsymbol{cost\ price}}$ × 100 = $\frac{675}{4500}$ × 100 = 15 ∴ the profit per dozen = Rs. 54 and profit percentage = 15%
Q. 16] The GCD of the length and breadth of a rectangular garden is 6. Area of the garden is 720 sq. m. There is a pathway of width 3 m along the edge inside the garden on all four sides. Find the area of the pathway.	Let the length be 6x & the breadth be 6y Area = l × b = 6x × 6y = 36xy 36xy = 720. ∴ xy = 20 = 5 × 4 where 5 and 4 are co-prime numbers ∴ x = 5 and y = 4 ∴ 6x = 30 & 6y = 24 ∴ sides are 30 m & 24 m length of the inner rectangle = 30 – 6 = 24m, breadth = (24 – 6) = 18 m ∴ the inside area = 24 × 18 = 432 sq. m ∴ area of the pathway = 720 – 432 = 288 m^2