## EXERCISE # 1

- Q.1 A number is as much greater than 36 as is less than 86. Find the number.
- Q.2 Find a number such that when 15 is subtracted from 7 times the number, the result is 10 more than twice the number.
- Q.3 The sum of a rational number and its reciprocal is  $\frac{13}{6}$ . Find the number.
- **Q.4** The sum of two numbers is 184. If one-third of the one exceeds one-seventh of the other by 8, find the smaller number.
- **Q.5** The difference of two numbers is 11 and one-fifth of their sum is 9. Find the numbers.
- **Q.6** If the sum of two numbers is 42 and their product is 437, then find the absolute difference between the numbers.
- Q.7 The sum of two numbers is 15 and the sum of their squares is 113. Find the numbers.
- **Q.8** The average of four consecutive even numbers is 27. Find the largest of these numbers.
- Q.9 The sum of the squares of three consecutive odd numbers is 2531. Find the numbers.
- Q.10 Of two numbers, 4 times the smaller one is less than 3 times the larger one by 5. If the sum of the numbers is larger than 5 times their difference by 22, find the two numbers.
- Q.11 The ratio between a two-digit number and the sum of the digits of that number is 4 : 1. If the digit in the unit's place is 3 more than the digit in the ten's place, what is the number?
- Q.12 A number consists of two digits. The sum of the digits is 9. if 63 is subtracted from the number, its digits are interchanged. Find the number.
- Q.13 A fraction becomes 2/3 when 1 is added to both, its numerator and denominator. And, it becomes 1/2 when 1 is subtracted from both the numerator and denominator. Find the fraction.

- **Q.14** 50 is divided into two parts such that the sum of their reciprocals is 1/12. Find the two parts.
- Q.15 If three numbers are added in pairs, the sums equal 10, 19 and 21. Find the numbers.
- Q.16 Rajeev's age after 15 years will be 5 times his age 5 years back. What is the present age of Rajeev?
- Q.17 The ages of two persons differ by 16 years. If 6 years ago, the elder one be 3 times as old as the younger one, find their present agaes.
- Q.18 The product of the ages of Ankit and Nikita is 240. If twice the age of Nikita is more than Ankit's age by 4 years, what is Nikita's age?
- Q.19 The present age of a father is 3 years more than three times the age of his son. Three years hence, father's age will be 10 years more than twice the age of the son. Find the present age of the father.
- Q.20 Rohit was 4 times as old as his son 8 years ago. After 8 years, Rohit will be twice as old as his son. What are their present ages ?
- Q.21 One year ago, the ratio of Gaurav's and Sachin's age was 6 : 7. Four years hence, this ratio would become 7 : 8. How old is Sachin?
- Q.22 Abhay's age after six years will be three-seventh of his father's age at present. Find present age of father, if present age of father is 4 more than three times of Abhay's present age.
- Q.23 The ages of Hari and Harry are in the ratio 5 : 7. Four years from now the ratio of their ages will be 3 : 4. Find their present ages.
- Q.24 The denominator of a rational number is greater than its numerator by 8. If the numerator is increased by 17 and the denominator is decreased by 1, the number obtained is  $\frac{3}{2}$ . Find the rational number
- Q.25 Amina thinks of a number and subtracts  $\frac{5}{2}$  from it. She multiplies the result by 8. The result now obtained is 3 times the same number she thought of. What is the number?

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## **ANSWER KEY**

## EXERCISE # 1

| <b>1.</b> 61   | <b>2.</b> 5         | <b>3.</b> 2/3 or 3/2 | <b>4.</b> 72               | <b>5.</b> 28 & 17   |
|--|---------------------|----------------------|----------------------------|---------------------|
| <b>6.</b> 4  | <b>7.</b> 7 & 8     | <b>8.</b> 30         | <b>9.</b> 27, 29, 31       | <b>10.</b> 59 & 43  |
| 11.36  | <b>12.</b> 81       | <b>13.</b> 3/5       | <b>14.</b> 30 & 20         | <b>15.</b> 6, 4, 15 |
| <b>16.</b> 10 years                                      | 17.14 & 30 years    | <b>18.</b> 12 years  | <b>19.</b> 33 years        |                     |
| <b>20.</b> 16 & 40 years                                 | <b>21.</b> 36 years | <b>22.</b> 49 years  |                            |                     |
| <b>23.</b> Hari's age = 20 years; Harry's age = 28 years |                     |                      | <b>24.</b> $\frac{13}{21}$ | <b>25.</b> 1        |

## EXERCISE # 2

Q.1 Solve the following equations.

(i) 
$$\frac{8x-3}{3x} = 2$$
 (ii)  $\frac{9x}{7-6x} = 15$   
(iii)  $\frac{z}{z+15} = \frac{4}{9}$  (iv)  $\frac{3y+4}{2-6y} = \frac{-2}{5}$   
(v)  $\frac{7y+4}{y+2} = \frac{-4}{3}$ 

Q.2 Solve the following equations and check your results.

(i) 3x = 2x + 18(ii) 5x + 9 = 5 + 3x(ii) 4z + 3 = 6 + 2z(iii) 2x - 1 = 14 - x(iv) 4z + 3 = 6 + 2z(iv) 8x + 4 = 3(x - 1) + 7(iv)  $x = \frac{4}{5}(x + 10)$ (iv)  $\frac{2x}{3} + 1 = \frac{7x}{15} + 3$ (ix)  $2y + \frac{5}{3} = \frac{26}{3} - y$ (x)  $3m = 5m - \frac{8}{5}$ 

**Q.3** If you subtract  $\frac{1}{2}$  from a number and multiply the result by  $\frac{1}{2}$ , you get  $\frac{1}{8}$ . What is the number ?

- Q.4 The perimeter of a rectangular swimming pool is 154 m. Its length is 2 m more than twice its breadth. What are the length and the breadth of the pool ?
- Q.5 The base of an isosceles traingle is  $\frac{4}{3}$  cm.

The perimeter of the traingle is  $4\frac{2}{15}$  cm.

What is the length of either of the remaining equal sides ?

- Q.6 Sum of two numbers is 95. If one exceeds the other by 15, find the numbers.
- Q.7 Two numbers are in the ratio 5 : 3. If they differ by 18, what are the numbers ?
- **Q.8** Three consecutive integers add to get 51. What are these integers.
- **Q.9** The sum of three consecutive multiples of 8 is 888. Find the multiples.

- **Q.10** Three consecutive intergers are such that when they are taken in increasing order and multiplied by 2, 3 and 4 respectively, they add up to 74. Find these numbers.
- Q.11 The ages of rahul and Haroon are in the ratio 5 : 7. Four years later the sum of their ages will be 56 years. What are their present ages ?
- Q.12 The number of boys and girls in a class are in the ratio 7 : 5. The number of boys is 8 more than the number of girls. What is the total class strength ?
- Q.13 Baichung's father is 26 years younger than Baichung's grandfather and 29 years older than Baichung. The sum of the ages of all the three is 135 years. What is the age of each one of them ?
- Q.14 Fifteen years from now Ravi's age will be four time his present age. What is Ravi's present age ?
- Q.15 A rational number is such that when you multiply it by  $\frac{5}{2}$  and add  $\frac{2}{3}$  to the product, you get  $-\frac{7}{12}$ . What is the number ?
- Q.16 Lakshmi is a cashier in a bank. She has currency notes of denominations ₹100, ₹50 and ₹10, respectively. The ratio of the number of these notes is 2 : 3 : 5. The total cash with Lakshmi is ₹4,00,000. How many notes of each denomination does she have ?
- Q.17 I have a total of ₹300 in coins of denomination Re 1, ₹2 and ₹5. The number of ₹2 coins is 160. How many coins of each denomination are with me ?
- Q.18 The orgainsers of an essay competition decide that a winner in the competiton gets a prize of ₹ 100 and a participant who does not win gets a prize of ₹25. The total prize money distributed is ₹3,000. Find the number of winners, if the total number of participants is 63.

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| ANSWER KEY                      |   |  |                                    |                                |  |  |
|---------------------------------|---|--|------------------------------------|--------------------------------|--|--|
| EXERCISE # 2                    |   |  |                                    |                                |  |  |
| <b>1.(i)</b> $x = \frac{3}{2};$ | (ii) $x = \frac{35}{33};$                   | (iii) z = 12 ;                                 | (iv) y = -8;                       | (v) $y = -\frac{4}{5}$         |  |  |
| <b>2.(i)</b> x = 18;            | (ii) $t = -1;$                              | (iii) $x = -2;$                                | (iv) $z = \frac{3}{2};$            | <b>(v)</b> x = 5;              |  |  |
| (vi) $x = 0;$                   | ( <b>vii</b> ) x = 40;                      | ( <b>viii</b> ) x = 10;                        | (ix) $y = \frac{7}{3};$            | ( <b>x</b> ) $m = \frac{4}{5}$ |  |  |
| <b>3.</b> $\frac{3}{4}$         | <b>4.</b> Length = $52 \text{ m}$ , Breadth |  | = 25 m                             | <b>5.</b> $1\frac{2}{5}$ cm    |  |  |
|                                 | <b>6.</b> 40 and 55                         |  |                                    |                                |  |  |
| <b>7.</b> 45, 27                | <b>8.</b> 16, 17, 18                        | 9. 288, 296 and 304                            | <b>10.</b> 7, 8, 9                 |                                |  |  |
| 11. Rahul's age : 20 year       | rs; Haroon's age : 28 year                  | rs 12. 48 students                             |                                    |                                |  |  |
| 13. Baichung's age : 17         | years; Baichung's Father'                   | s age : 46 y <mark>ears; Bai</mark> chun       | g's Grandfather's age : 72         | years                          |  |  |
| <b>14.</b> 5 years              | <b>15.</b> $-\frac{1}{2}$                   | <b>16.</b> $\neq$ 100 $\rightarrow$ 2000 notes | ; ₹50 $\rightarrow$ 3000 notes; ₹1 | $10 \rightarrow 5000$ notes    |  |  |

**17.** Number of Re 1 coins = 80; Number of ₹2 coins = 60; Number of ₹5 coins = 20 **18.** 19