Q1

Answer:

Let the numbers be 8x and 3x.

$8x + 3x = 143$

$\Rightarrow 11x = 143$

$\Rightarrow x = \frac{143}{11}$

$\Rightarrow x = 13$

$\therefore$ One number $= 8x = 8 \times 13 = 104$

Other number $= 3x = 3 \times 13 = 39$

Q2.

Answer:

Let the original number be x.

$\frac{2}{3}$ of the number is 20 less than the original number.

$\therefore \frac{2}{3}x = x - 20$

$\Rightarrow \frac{2x}{3} = x - 20$

$\Rightarrow 2x = 3\left(x - 20\right)$ $\left(\text{by cross multiplication}\right)$

$\Rightarrow 2x = 3x - 60$

$\Rightarrow 2x - 3x = -60$

$\Rightarrow -x = -60$

$\Rightarrow x = 60$

Therefore, the original number is 60.

Q3.

Answer:

Let the number be x.
Four fifths of the number is 10 more than two thirds of the number.

$\therefore \frac{4}{5}x = 10 + \frac{2}{3}x$

$\Rightarrow \frac{4x}{5} = 10 + \frac{2x}{3}$

$\Rightarrow \frac{4x}{5} = \frac{30 + 2x}{3}$ $\left(L.C.M. \text{ of 1 and 3 is 3}\right)$

$\Rightarrow 3\left(4x\right) = 5\left(30 + 2x\right)$ $\left(\text{by cross multiplication}\right)$

$\Rightarrow 12x = 150 + 10x$

$\Rightarrow 12x - 10x = 150$

$\Rightarrow 2x = 150$

$\Rightarrow x = \frac{150}{2} = 75$

Therefore, the number is 75.

Q4.

Answer:

Let one part be x.

7 times the first part = 7x

Let the other part be $\left(24 - x\right)$.

5 times the second part = $5\left(24 - x\right)$

$\therefore 7x + 5\left(24 - x\right) = 146$

$\Rightarrow 7x + 120 - 5x = 146$

$\Rightarrow 7x - 5x = 146 - 120$

$\Rightarrow 2x = 26$

$\Rightarrow x = \frac{26}{2} = 13$

Therefore, one part is 13.

Other part $= \left(24 - x \right) = \left(24 - 13 \right) = 11$

Q5.

Answer:

Let the number be x.

Fifth part increased by $5 = \frac{x}{5} + 5$

Fourt part diminished by $5 = \frac{x}{4} - 5$

$\therefore \frac{x}{5} + 5 = \frac{x}{4} - 5$

$\Rightarrow 5 + 5 = \frac{x}{4} - \frac{x}{5}$

$\Rightarrow 10 = \frac{5x - 4x}{20}$

$\Rightarrow 10 = \frac{x}{20}$

$\Rightarrow 200 = x$

$\Rightarrow x = 200$

Therefore, the number is 200.

Q6.

Answer:

Let the common multiple for the given three numbers be x.

Then, the three numbers would be 4x, 5x and 6x.

$\therefore 4x + 6x = 5x + 55$

$\Rightarrow 10x = 5x + 55$

$\Rightarrow 10x - 5x = 55$

$\Rightarrow 5x = 55$

$\Rightarrow x = \frac{55}{5} = 11$

$\therefore Smallest\ number = 4x = 4\left(11\right) = 44$

$Largest\ number\ is = 6x = 6\left(11\right) = 66$

*T*hird number $= 5x = 5\left(11\right) = 55$

Therefore, *the* three numbers are 44, 55 and 66.

Q7.

Answer:

Let the number be x.

$\therefore 10 + 4x = 5x - 5$

$\Rightarrow 10 + 5 = 5x - 4x$

$\Rightarrow 15 = x$

$\Rightarrow x = 15$ (by transposition)

Therefore, the number is 15.

Q8.

Answer:

Let us consider x as the common multiple of both the number.

Then, first number = $3x$

Second number = $5x$

$\therefore \dfrac{3x + 10}{5x + 10} = \dfrac{5}{7}$

$\Rightarrow 7\left(3x + 10\right) = 5\left(5x + 10\right)$ $\quad$ (by cross multiplication)

$\Rightarrow 21x + 70 = 25x + 50$

$\Rightarrow 21x - 25x = 50 - 70$

$\Rightarrow -4x = -20$

$\Rightarrow x = \dfrac{-20}{-4} = 5$

Therefore, the common multiple of both the numbers is 5.

First number = $3x = 3 \times 5 = 15$

Second number = $5x = 5 \times 5 = 25$

Q9.

Answer :

Let the first odd number be x.

Let the second odd number be $\left(x + 2 \right)$.

Let the third odd number be $\left(x + 4 \right)$.

$\therefore x + \left(x + 2 \right) + \left(x + 4 \right) = 147$

$\Rightarrow x + x + 2 + x + 4 = 147$

$\Rightarrow 3x + 6 = 147$

$\Rightarrow 3x = 147 - 6$

$\Rightarrow 3x = 141$

$\Rightarrow x = \frac{141}{3} = 47$

Therefore, the first odd number is 47.

$Second\ odd\ number = \left(x + 2 \right) = \left(47 + 2 \right) = 49$

$Third\ odd\ number = \left(x + 4 \right) = \left(47 + 4 \right) = 51$

Q10.

Answer :

Let the first even number $be\ x$.

Let the second even number $be\ x + 2$.

Let the third even number be $x + 4$.

$\therefore x + x + 2 + x + 4 = 234$

$\Rightarrow x + x + 2 + x + 4 = 234$

$\Rightarrow 3x + 6 = 234$

$\Rightarrow 3x = 234 - 6$

$\Rightarrow 3x = 228$

$\Rightarrow x = \frac{228}{3} = 76$

$\therefore First\ even\ number = x = 76$

$Second\ even\ number = x + 2 = 76 + 2 = 78$

$Third\ even\ number = x + 4 = 80$

Q11.

Answer :

Let the digit in the units place be x.

$Digit\ in\ the\ tens\ place = \left(12 - x \right)$

$\therefore\ Original\ number = 10\left(12 - x \right) + x = 120 - 9x$

On reversing the digits, we have x at the tens place and $\left(12 - x \right)$ at the units

place.

$\therefore$ New number $= 10x + 12 - x = 9x + 12$

New number $-$ Original number $= 54$

$\Rightarrow 9x + 12 - \left(120 - 9x\right) = 54$

$\Rightarrow 9x + 12 - 120 + 9x = 54$

$\Rightarrow 18x - 108 = 54$

$\Rightarrow 18x = 54 + 108$

$\Rightarrow 18x = 162$

$\Rightarrow x = \frac{162}{18} = 9$

Therefore, the digit in *the* units place is 9.

*D*igit in tens place $= \left(12 - x\right) = \left(12 - 9\right) = 3$

Therefore, the original number is 39.

Check :

The original number is 39.

*S*um of the digits in the original number $= \left(3 + 9\right) = 12$

*N*ew number obtained on reversing the digit*s* $= 93$

New number $-$ Original number $= \left(93 - 39\right) = 54$

Thus, both the given conditions are satisfied by 39.

Hence, the original number *is* 39.

Q12.

Answer :

Let the digit in *the* units place be x.

*D*igit in *the* tens place $= 3x$

*O*riginal number $= 10\left(3x\right) + x = 30x + x$

On reversing the digits, we have x at the tens place and $\left(3x\right)$ at the units place.

$\therefore$ *New* number $= 10\left(\mathbf{x}\right) + 3\mathbf{x} = 10\mathbf{x} + 3\mathbf{x}$

New number $=$ Original number -36

$\Rightarrow 10x + 3x = 30x + x - 36$

$\Rightarrow 13x = 31x - 36$

$\Rightarrow 36 = 31x - 13x$

$\Rightarrow 36 = 18x$

$\Rightarrow 18x = 36$

$\Rightarrow x = \frac{36}{18} = 2$

Therefore, the digit in *the* units place is 2.

*D*igit in *the* tens place $= \left(3\mathbf{x}\right) = 3 \times 2 = 6$

Therefore, the original number is 62.

Check :

New number $+\ 36 =$ Original Number

$$26 + 36 = 62$$

Henc*e*, both the conditions are satisfied.

Therefore, the original number *is* 62.

Q13.

Answer :

Let the numerator be x.

The denominator is greater than the numerator by 7.

$\therefore \left(\mathbf{x + 7}\right)$

$\therefore \dfrac{x + 17}{(x + 7) - 6} = 2$

$\Rightarrow \dfrac{x + 17}{x + 1} = 2$

********** END *********