

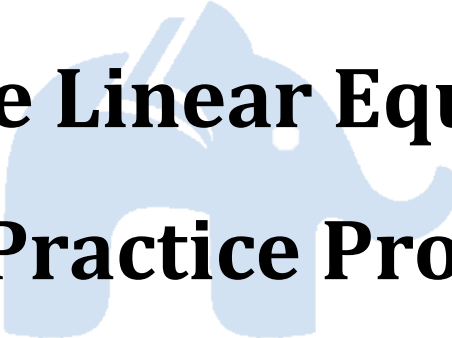


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Class 7 - ICSE

MATHEMATICS

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**Simple Linear Equation
Daily Practice Problems
Solutions**

Question 1:

Which of the following is true about Simple Linear Equation? [Level: Easy]

- (a) $2x - 10 > 4$
- (b) $2x - 10 = 4$
- (c) $2x - 10 < 4$
- (d) $2x - 10 \geq 4$

Answer:

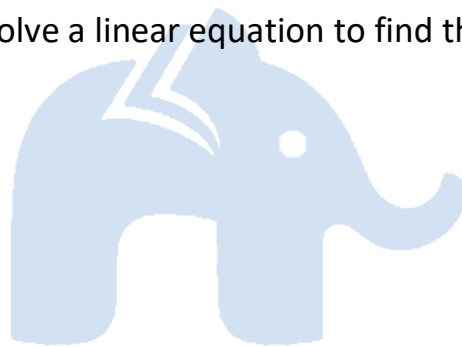
Correct option is (b) $2x - 10 = 4$

An equation is a statement which states the two expressions are equal.

Question 2:

Jai asked from Sona to solve a linear equation to find the value of x , $\frac{2x}{5} - 4 = 10$? [Level: Easy]

- (a) 25
- (b) 30
- (c) 35
- (d) 40



Answer:

Correct option is (c) 35

$$\frac{2x}{5} - 4 = 10$$

Adding 4 on both the sides,

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

$$\frac{2x}{5} = 14$$

Multiply by 5 on both the sides

$$\frac{2x}{5} \times 5 = 14 \times 5$$

$$x = 35$$

Question 3:

Teacher asked some questions from students about linear equation, one of them is $y + 4 = 5\frac{1}{4}$. Can you help them to solve it? [Level: Easy]

(a) $3\frac{1}{4}$

(b) $2\frac{1}{4}$

(c) $1\frac{1}{4}$

(d) $5\frac{1}{4}$

Answer:

Correct option is (c) $1\frac{1}{4}$

$$y + 4 = 5\frac{1}{4}$$

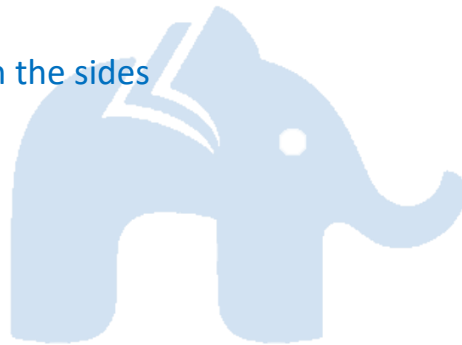
By subtraction 4 on both the sides

$$y + 4 - 4 = \frac{21}{4} - 4$$

$$y = \frac{21-16}{4}$$

$$y = \frac{5}{4}$$

$$= 1\frac{1}{4}$$



Question 4:

Robin asked from his friend Sam to help her to solve the linear equation $4 + 8x = 9x - 13$? [Level: Moderate]

(a) 13

(b) 15

(c) 17

(d) 16

Answer:

Correct option is (c) 17

$$4 + 8x = 9x - 13$$

$$4 + 13 = 9x - 8x$$

$$17 = x$$

Question 5:

In an examination, one of the questions based on linear equation is to solve the linear equation $x(x + 2) = x^2 + x + 16$? [Level: Moderate]

(a) 4

(b) 6

(c) 8

(d) 10

Answer:

Correct option is (c) 8

$$x(x + 2) = x^2 + x + 16$$

$$x^2 + 2x = x^2 + x + 16$$

Subtracting x^2 on both the sides

$$x^2 + 2x - x^2 = x^2 + x + 16 - x^2$$

$$2x = x + 16$$

Subtracting x on both the sides

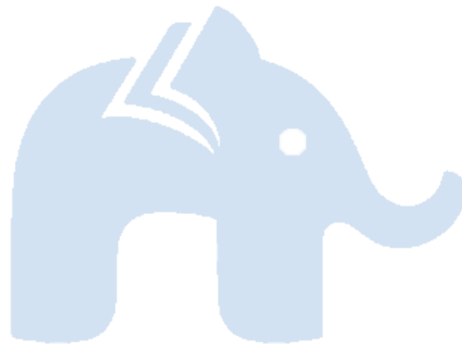
$$2x - x = x + 16 - x$$

$$2x = 16$$

Divide by 2 on both the sides

$$\frac{2x}{2} = \frac{16}{2}$$

$$x = 8$$



Question 6:

Solve the linear equation $y + 20\% \text{ of } y = 80$? [Level: Moderate]

- (a) 20
- (b) 40
- (c) 60
- (d) 80

Answer:

Correct option is (b) 40

$$y + 20\% \text{ of } y = 80$$

$$y + \frac{20}{100} \times y = 80$$

$$y + \frac{1}{5}y = 80$$

$$\frac{5y+y}{5} = 80$$

$$\frac{6y}{5} = 80$$

Multiply by 5 on both the sides

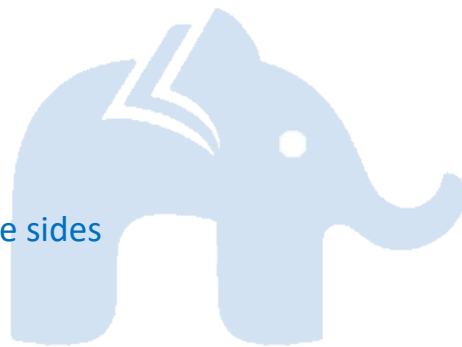
$$\frac{6y}{5} \times 5 = 80 \times 5$$

$$6y = 80 \times 5$$

Divide by 6 on both the sides

$$\frac{6y}{6} = \frac{80 \times 5}{6}$$

$$y = 33\frac{1}{3}$$



Question 7:

Divide 40 into two parts, so that the greater part is 4 times the smaller. Find the greater and smaller parts? [Level: Difficult]

- (a) 32, 8
- (b) 8, 32

(c) 32, 32

(d) 8, 8

Answer:

Correct option is (a) 32, 8

Let the greater part be x .

The smaller part = $40 - x$

Given: Greater part = $4x$

smaller part $x = 4 \times (40 - x)$

$$x = 160 - 4x$$

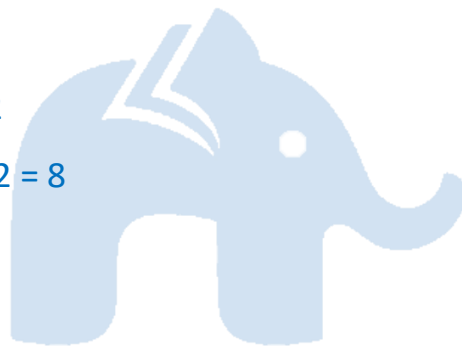
$$x + 4x = 160$$

$$\Rightarrow 5x = 160$$

$$x = \frac{160}{5} = 32$$

Greater number = $x = 32$

smaller number = $40 - 32 = 8$



Question 8:

The price of 4 tables and 5 chairs is Rs. 700. If a table costs Rs. 40 more than a chair. Find the cost of each? [Level: Moderate]

(a) Rs. 120

(b) Rs. 100

(c) Rs. 160

(d) Rs. 140

Answer:

Correct option is (b) Rs. 100

Let the cost of each chair = Rs. x

The cost of each table = Rs. $(x + 40)$

Since, cost of 4 tables + cost of 5 chairs = 700

$$4(x + 40) + 5x = 700$$

$$4x + 160 + 5x = 700$$

$$9x + 160 = 700$$

$$9x = 700 - 160$$

$$9x = 560$$

$$x = \frac{560}{9}$$

$$= \text{Rs. } 60$$

Cost of one chair = Rs. x = Rs. 60

Cost of one table = Rs. $(60 + 40)$

= Rs. 100

Question 9:

A certain number of Rs. 10 notes and a certain number of Rs. 50 notes are kept in a purse so that there are 60 notes in the purse and their total value is Rs. 1,400. Find the number of each type of notes? [Level: Difficult]

(a) 40, 20

(b) 20, 40

(c) 40, 40

(d) 20, 20

Answer:

Correct option is (a) 40, 20

Let the number of Rs. 10 notes = x

The number of Rs. 50 notes = $60 - x$

Value of Rs. 10 notes = $x \times 10 = \text{Rs. } 10x$

value of Rs. 50 notes = $(60 - x) \times \text{Rs. } 50 = \text{Rs. } (3000 - 50x)$

Total value of all the notes = Rs. 1,400

$$10x + (3000 - 50x) = 1400$$

$$10x + 3000 - 50x = 1400$$

$$-40x = 1400 - 3000$$

$$-40x = -1600$$

$$x = \frac{1600}{40}$$

$$= 40$$

The number of Rs. 10 notes = $x = 40$

The number of Rs. 50 notes = $60 - x$

$$= 60 - 40$$

$$= 20$$

Question 10:

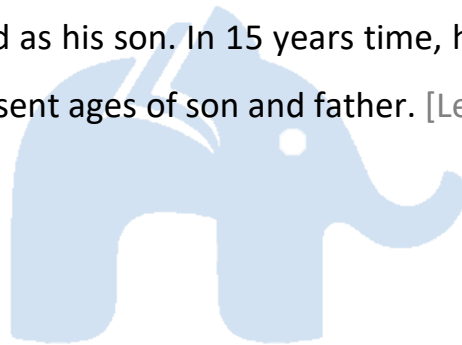
A father is 3 times as old as his son. In 15 years time, his age will be double his son's age. Find their present ages of son and father. [Level: Moderate]

(a) 15 years, 45 years

(b) 45 years, 15 years

(c) 15 years, 15 years

(d) 45 years, 45 years



Answer:

Correct option is (b) 10 years, 30 years

Let the present age of the son = x years

Present age of the father = $3x$ years

After 15 years:

Son's age will be $(x + 15)$ years

and father's age will be $(3x + 15)$ years

According to given condition:

$$3x + 15 = 2(x + 15)$$

$$3x + 15 = 2x + 30$$

$$3x - 2x = 30 - 15$$

$$\text{i.e. } x = 15$$

Present age of son = 15 years

and present age of father = $3x = 3 \times 15$ years = 45 years

Question 11:

Find three consecutive natural numbers such that the sum of the first and the second is 20 more than the third? [Level: Difficult]

(a) 12, 13, 14

(b) 13, 14, 15

(c) 16, 17, 18

(d) 17, 18, 19

Answer:

Correct option is (c) 16, 17, 18

Let the first number be x .

According to the question second number is $x + 1$

and the third is $x + 2$.

Sum of first and second numbers = $x + (x + 1)$.

According to the question:

$$\Rightarrow x + (x + 1) = 20 + (x + 2)$$

$$\Rightarrow 2x + 1 = 22 + x$$

$$\Rightarrow 2x - x = 22 - 1$$

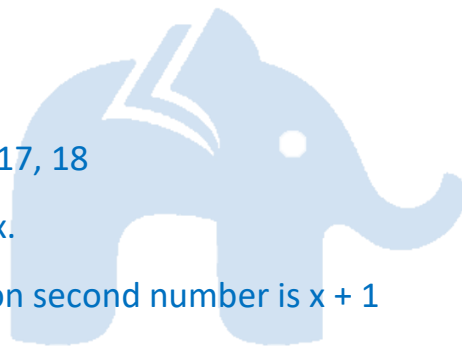
$$\Rightarrow x = 20$$

So, first number = $x = 20$,

Second number = $x + 1 = 20 + 1 = 21$

And third number = $x + 2 = 20 + 2 = 22$

Thus, the required consecutive natural numbers are 20, 21 and 22.



Question 12:

The length of a rectangular plot exceeds its breadth by 4 metres. If the perimeter of the plot is 120 metres, find the length and the breadth of the plot? [Level: Moderate]

- (a) 28 cm and 38 cm
- (b) 28 cm and 32 cm
- (c) 30 cm and 28 cm
- (d) 25 cm and 35 cm

Answer:

Correct option is (b) 28 cm and 32 cm

Given that

$$l = b + 4$$

$$\text{Perimeter of rectangular plot} = 2(l + b)$$

$$\Rightarrow 2(l + b) = 120$$

$$\Rightarrow 2(b + 4 + b) = 120$$

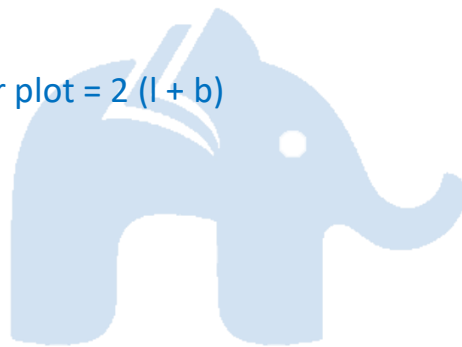
$$\Rightarrow b + 4 + b = 60$$

$$\Rightarrow 2b + 4 = 60$$

$$\Rightarrow 2b = 56$$

$$\Rightarrow b = 28 \text{ cm}$$

$$\Rightarrow l = 28 + 4 = 32 \text{ cm}$$



Question 13:

The difference between two supplementary angles is 20° . Find the angles? [Level: Moderate]

- (a) 70° and 110°
- (b) 50° and 50°
- (c) 60° and 40°

(d) 70° and 40°

Answer:

Correct option is (a) 70° and 110°

Let one angle be x .

Then, the other angle is $x-40^\circ$.

We know that, sum of two supplementary angles is 180° .

Hence,

$$x+(x-40^\circ)=180^\circ$$

$$2x-40^\circ=180^\circ$$

$$2x=180^\circ+40^\circ$$

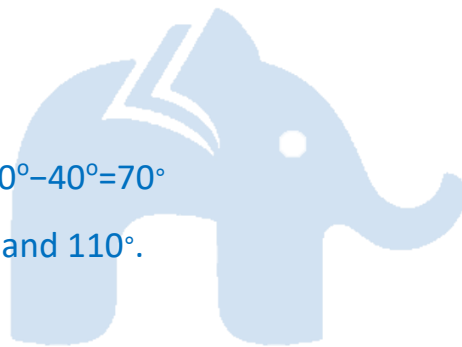
$$2x=220^\circ$$

$$x= \frac{220^\circ}{2}$$

$$x=110^\circ$$

$$\therefore \text{Other angle} = x-40=110^\circ-40^\circ=70^\circ$$

Thus, the angles are 70° and 110° .



Question 14:

The sum of three consecutive odd integers is 81. Find the integers? [Level: Moderate]

(a) 25, 27, 29

(b) 24, 27, 29

(c) 26, 27, 29

(d) 25, 26, 27

Answer:

Correct option is (a) 25, 27, 29

Let the three consecutive odd integers be x , $x+2$, $x+4$.

Then according to the problem,

$$x+x+2+x+4=81$$

$$\text{or, } 3x+6=81$$

$$\text{or, } 3x=75$$

$$\text{or, } x=25.$$

So, the numbers are 25,27,29.

Question 15:

There is one statement question in the quiz, five times a number is 125. Find that number? [Level: Easy]

- (a) 23
- (b) 24
- (c) 25
- (d) 26

Answer:

Correct option is (c) 25

Consider the number = x

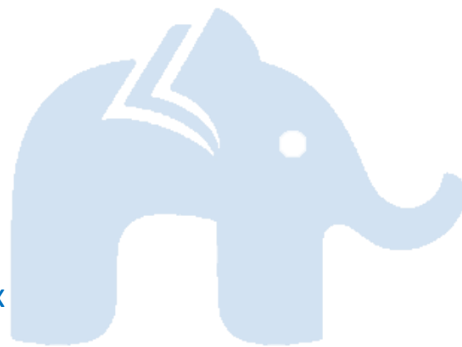
Based on the condition

$$5x = 125$$

So, we get

$$x = \frac{125}{5} = 25$$

Hence, the number is 25.



Question 16:

In Olympiad, there is one question of linear equation is that the difference between a number and one-fourth of itself is 30, find the number. [Level: Moderate]

- (a) 36

(b) 38

(c) 40

(d) 41

Answer:

Correct option is (c) 40

Consider the number = x

Based on the condition

$$x - \left(\frac{1}{4}\right)x = 30$$

Taking LCM

$$\frac{4x-x}{4} = 30$$

$$\frac{3x}{4} = 30$$

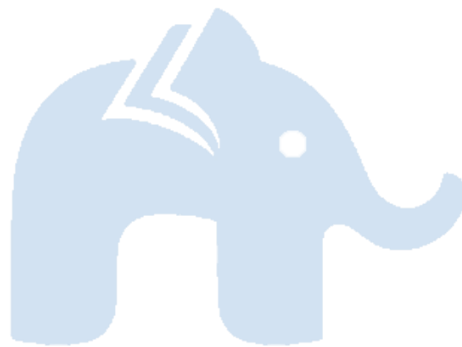
By cross multiplication

$$x = 30 \times \frac{4}{3}$$

So, we get

$$x = 10 \times 4 = 40$$

Hence, the number is 40.



Question 17:

The sum of three consecutive even numbers is 54. Find the numbers? [Level:

Moderate]

(a) 16, 18, 20

(b) 14, 16, 18

(c) 18, 19, 20

(d) 12, 13, 14

Answer:

Correct option (a) 16, 18, 20

Consider the first even number = x

Second even number = $x + 2$

Third even number = $x + 4$

Based on the condition

$$x + x + 2 + x + 4 = 54$$

By further calculation

$$3x + 6 = 54$$

$$3x = 54 - 6 = 48$$

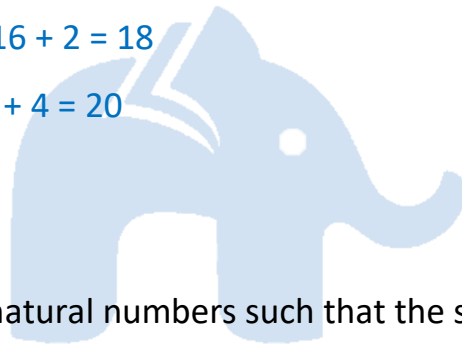
So, we get

$$x = \frac{48}{3} = 16$$

First even number = 16

Second even number = $16 + 2 = 18$

Third even number = $16 + 4 = 20$



Question 18:

Find three consecutive natural numbers such that the sum of the first and the second is 25 more than the third? [Level: Difficult]

- (a) 27, 28, 29
- (b) 26, 27, 28
- (c) 28, 29, 30
- (d) 25, 26, 27

Answer:

Correct option is (b) 26, 27, 28

Consider the first consecutive number = x

Second consecutive number = $x + 1$

Third consecutive number = $x + 2$

Based on the condition

$$x + x + 1 = 25 + x + 2$$

By further calculation

$$2x + 1 = 27 + x$$

$$2x - x = 27 - 1$$

So, we get

$$x = 26$$

First consecutive number = 26

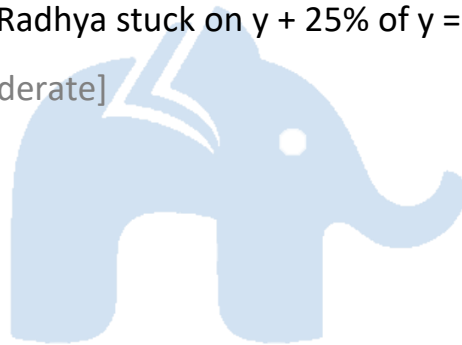
Second consecutive number = $26 + 1 = 27$

Third consecutive number = $26 + 2 = 28$

Question 19:

In quiz of mathematics, Radhya stuck on $y + 25\%$ of $y = 75$. Can anybody help her to solve? [Level: Moderate]

- (a) 40
- (b) 60
- (c) 80
- (d) 90



Answer:

Correct option is (d) 15

$$y + \frac{25}{100} \times y = 75$$

Taking LCM

$$\frac{100y+25y}{100} = 75$$

By cross multiplication

$$125y = 75 \times 100 = 7500$$

So, we get

$$y = \frac{7500}{125} = 60$$

Question 20:

Solve the linear equation $9x - 5x + x = 25 + 2x$. [Level: Moderate]

(a) -8

(b) -9

(c) -10

(d) -15

Answer:

Correct option is (a) -8

$$9x - 5x + x = 25 + 2x$$

By further calculation

$$9x - 5x + x - 2x = 24$$

So, we get

$$-3x = 24$$

$$x = \frac{24}{-3} = -8$$

