

Directions (01-05): In the given number series find out the answer in place of the question mark '?'.

1. Question

118 119 111 ? 74 199

a) 112

b) 92

c) 138

d) 128

e) 101

Answer: C

Explanation:

$$118 + 1^3 = 119$$

$$119 - 2^3 = 111$$

$$111 + 3^3 = 138$$

$$138 - 4^3 = 74$$

$$74 + 5^3 = 199$$

Thus, the required number is = 138.

2. Question

74 128 102 156 ? 212 270

- a) 118
- b) 130
- c) 142
- d) 158
- e) 172

Answer: D

Explanation:

$$74 + 28 = 102$$

$$128 + 28 = 156$$

$$102 + 56 = 158$$

$$156 + 56 = 212$$

$$158 + 112 = 270$$

Thus, the required number is = 156.

3. Question

4 5 14 51 220 ?

- a) 440
- b) 880
- c) 1025
- d) 1125

e) 1250

Answer: D

Explanation:

$$4 \times 1 + 1^2 = 5$$

$$5 \times 2 + 2^2 = 14$$

$$14 \times 3 + 3^2 = 51$$

$$51 \times 4 + 4^2 = 220$$

$$220 \times 5 + 5^2 = 1125$$

Thus the required number is = 1125.

4. Question

7 28 63 126 215 ?

a) 299

b) 344

c) 312

d) 327

e) 409

Answer: B

Explanation:

$$2^3 - 1 = 7$$

$$3^3 + 1 = 28$$

$$4^3 - 1 = 63$$

$$5^3 + 1 = 126$$

$$6^3 - 1 = 215$$

$$7^3 + 1 = 344$$

Thus, the required number is = 344.

5. Question

25 24 27 25 29 ? 31 27

a) 25

b) 26

c) 27

d) 28

e) 30

Answer : B

Explanation:-

$$25 + 2 = 27$$

$$24 + 1 = 25$$

$$27 + 2 = 29$$

$$25 + 1 = 26$$

$$29 + 2 = 31$$

Thus, the required number is = 26.

Directions: (06 -10) Study the following information carefully and answer the questions given beside.

Indian footballer Sunil Chetri scored goals against different countries in three different years.

(NOTE: Total goals scored in a year= Bangladesh + England + Denmark)

2010:

The total goals scored in 2010 were 1200. The goals scored against England were $\frac{1}{3}$ rd of the goals against Denmark in 2011. The average number of goals scored against Bangladesh and England was 300.

2011:

The total number of goals scored against Bangladesh and Denmark was 1200. The ratio of the total goals scored against Denmark in 2010 to that of the total goals scored against Denmark in 2011 is 4:3. The total goals scored against England in 2011 were equal to the total goals scored against England in 2012.

2012: The sum of the total goals scored against Bangladesh and England is equal to the total goals scored against Denmark. The total goals scored in 2012 were 1400. The total runs scored against Bangladesh were twice of the goals scored against England in 2010.

6. Question

What were the total goals scored in 2011?

a) 1000

b) 1200

c) 1400

d) 1600

e) 1500

Answer: D

Explanation:

2010:

The total goals scored in 2010 were 1200.

The average number of goals scored against Bangladesh and England was 300. So, the total runs scored against Bangladesh and England was 600.

The total goals scored against others = $1200 - 600 = 600$

2011:

The ratio of the total goals scored against Denmark in 2010 to that of the total goals scored against Denmark in 2011 is 4 : 3.

So, the total goals against Denmark in 2011

$$= (600 \times 3)/4$$

$$= 450$$

The total goals scored against Bangladesh and Others = 1200

The total goals scored against Bangladesh = $1200 - 450 = 750$

2012:

The total goals scored in 2012 were 1400.

The sum of the total goals scored against Bangladesh and England is equal to the total goals scored against Denmark. It means the total goals scored against Denmark is half i.e 700 goals and the sum of the total goals scored against Bangladesh and England was 700.

Year	Bangladesh	England	Denmark
2010			600
2011	750		450
2012			700

2010:

The goals scored against England were 1/3rd of the runs against Denmark in 2012.

So the total goals scored against England were $=450 \times 1/3= 150$

The total goals scored against Bangladesh = $600 - 150 = 450$

2012:

The total goals scored against Bangladesh were twice of the goals scored against England in 2010.

The total goals scored against Bangladesh = $150 \times 2= 300$

The total goals scored against England = $700 - 300=400$

2011:

The total goals scored against England in 2011 were equal to the total goals scored against England in 2012.

The total goals scored against England = 400

Year	Bangladesh	England	Denmark
2010 (1200)	450	150	600
2011 (1600)	750	400	450
2012 (1400)	300	400	700

(Note: The above explanation for question no 06 – 10)

The total goals scored in 2011 were 1600.

Here, the correct option is D.

7. Question

What is the ratio of the total goals scored against Bangladesh in 2010 to that of the total goals scored against England in 2012?

a) 9:7

- b) 7:9
- c) 9:8
- d) 11:7
- e) 11:13

Answer: C

Explanation:

The total goals scored against Bangladesh in 2010 = 450

The total goals scored against England in 2012 = 400

So, required ratio = $450 : 400 = 9 : 8$

Hence, option C is correct.

8. Question.

What is the sum of the goals scored against England in all three years?

- a) 800
- b) 850
- c) 950
- d) 1050
- e) 1100

Answer: C

Explanation:

The total goals scored against England in all three years

$$= (150 + 400 + 400)$$

$$= 950$$

Hence, option C is correct.

9. Question.

The total goals scored against Bangladesh in 2011 is what percentage of the total goals scored against Bangladesh in 2012?

a) 100%

b) 125%

c) 150%

d) 200%

e) 250%

Answer: E

Explanation:

The total goals scored against Bangladesh in 2011 = 750

The total goals scored against Bangladesh in 2012 = 300

$$\text{So, reqd. \%} = 750/300 \times 100 \% = 250\%$$

Hence, option E is correct.

10. Question

What is the difference between the total goals scored against Denmark in 2010 to the total goals scored against Denmark in 2011?

- a) 300
- b) 250
- c) 200
- d) 150
- e) 100

Answer: D

Explanation:

The total goals scored against Denmark in 2010 = 600

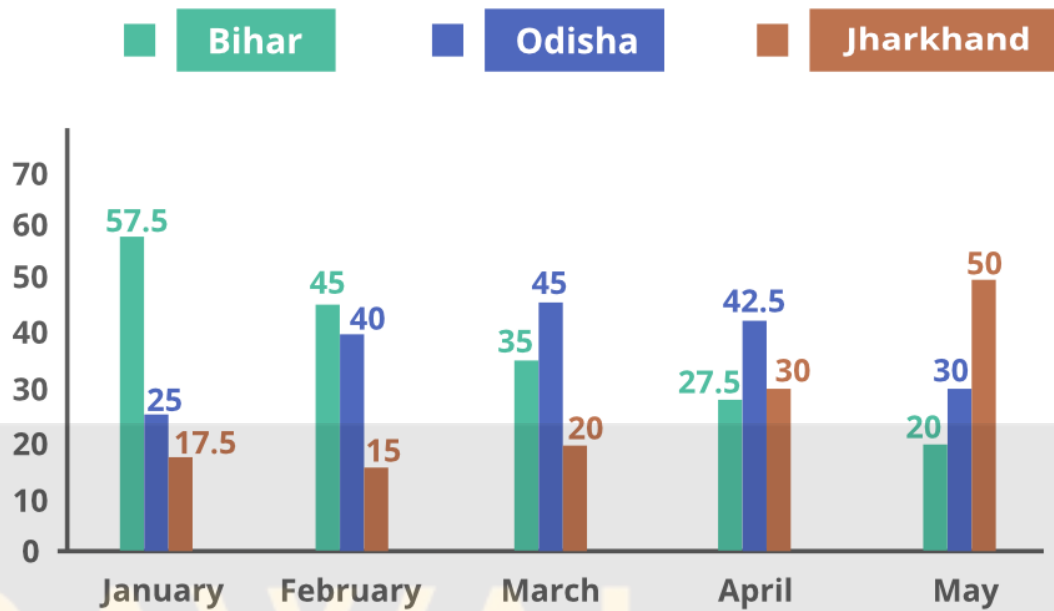
The total goals scored against Denmark in 2011 = 450

So, required difference = $(600 - 450) = 150$

Hence, option D is correct.

Direction (11-15): Study the bar chart carefully and answer the questions given beside.

A number of workers from Bihar, Odisha, and Jharkhand are working in a production factory in Mumbai city. Given bar graph shows the percentage of employees from Bihar, Odisha, and Jharkhand in Mumbai city over the different months. Study the bar graph and answer the following questions:



11. Question

If the ratio of the total workers who are doing their jobs in the month January and April is 3:5 and the total workers from Bihar in April are 4125, then find the total workers from Jharkhand in the month of January in Mumbai city.

- a) 1575
- b) 1690
- c) 2250
- d) 1920
- e) 1780

Answer: A

Explanation:

Total workers doing their jobs in Mumbai in the month of April is

$$= (4125 \times 100) / 27.5 = 15000$$

Total workers doing their jobs in Mumbai in the month of January

$$= (15000 \times 3) / 5 = 9000$$

Total workers from Jharkhand in the month of January in Mumbai

$$= 17.5\% \text{ of } 9000$$

$$= 1575$$

Thus, the total number of workers from Jharkhand in the month of January is = **1575**.

12. Question

If total workers from Bihar in Mumbai in the month of February are equal to the total workers from Odisha in Mumbai in the month of May, then find the ratio of workers from Jharkhand in Mumbai in the respective months.

a) 2 : 5

b) 2 : 3

c) 1 : 5

d) 3 : 5

e) 5 : 7

Answer: C

Explanation:

Let workers on February and May are 'x' and 'y' respectively.

According to the question,

$$45\% \text{ of } x = 30\% \text{ of } y$$

$$x : y = 2 : 3$$

Required ratio-

$$15\% \text{ of } x : 50\% \text{ of } y = 15x : 50y$$

$$= 1 : 5$$

13. Question

If total workers in March are three times the total workers from Jharkhand in April and also the total workers from Bihar in the month of March is 5670, then find that the total workers from Bihar in the month of March are how much percent more than the total workers from Jharkhand in the month April.

- a) 5%
- b) 6%
- c) 4%
- d) 3%
- e) 7%

Answer: A

Explanation:

Total workers on March = $(5670 \times 100) / 35 = 16200$

Total workers from Jharkhand on April = $16200 / 3 = 5400$

Required per cent = $(5670 - 5400) / 5400 \times 100 = 5\%$

Thus, workers from Bihar in the month of March are 5 % more than the total workers from Jharkhand in April.

14. Question

If the total number of workers from Odisha in the month of January is 2250 and the ratio of workers from Odisha in the months January and February is 45:88, then find the total number of workers in Mumbai city in the months January and February together.

- a) 21000
- b) 22000
- c) 23000
- d) 25000
- e) 20000

Answer: B

Explanation:

Total workers in the month January = $(2250 \times 100) / 25 = 9000$

Total workers from Odisha is in the month February = $(2250 \times 88) / 45 = 4400$

Total workers in the month February = $(4400 \times 100) / 40 = 11000$

Total workers in the Mumbai city in the month January and February together = (9000 + 11000) = 20000

Thus, the total workers in Mumbai city in the month of January and February together = **20000**.

15. Question

If the ratio of total workers in all the given months from January to May is 2 : 3 : 3 : 4 : 5, then find the ratio of total workers from Bihar in Mumbai over all the given months from January to May.

a) 23 : 27 : 21 : 22 : 20

b) 22 : 29 : 23 : 20 : 21

c) 13 : 21 : 23 : 31 : 11

d) 24 : 27 : 21 : 29 : 25

e) None of these

Answer: A

Explanation:

Let the total number of workers in the given months be $2x$, $3x$, $3x$, $4x$ and $5x$ respectively.

Required ratio:

$$= 57.5\% \text{ of } 2x : 45\% \text{ of } 3x : 35\% \text{ of } 3x : 27.5\% \text{ of } 4x : 20\% \text{ of } 5x$$

$$= 57.5 \times 2 : 45 \times 3 : 35 \times 3 : 27.5 \times 4 : 20 \times 5$$

$$= 115 : 135 : 105 : 110 : 100$$

$$= 23 : 27 : 21 : 22 : 20$$

Thus the ratio over all the given months from January to May is

$$= 23 : 27 : 21 : 22 : 30$$

16. Question

What approximation value will come in place of ' x ' in the given question (find approximate value)

$$143.99 - (80 \times 19.99) / 39.99 + x = 69.99$$

a) 27

b) 34

c) 49

d) 21

e) 56

Answer: B

Explanation:

$$143.99 - (80 \times 19.99) / 39.99 + ? = 69.99$$

$$144 - (80 \times 20) / 40 + x = 70$$

$$144 - 40 - 70 = x$$

$$x = 34$$

Thus, the value of x is = 34.

17. Question

16 cm and 20 cm are the sides of a triangle. The angle included between the two sides is 30° . Then find the area of the triangle.

- a) 80
- b) 70
- c) 90
- d) 100
- e) 150

Answer: A

Explanation:

Let $a = 16$ cm

$b = 20$ cm

$$\text{Area} = \frac{1}{2} \times ab \sin\theta$$

$$= \frac{1}{2} \times 16 \times 20 \times \sin 30^\circ$$

$$= \frac{1}{2} \times 16 \times 20 \times \frac{1}{2}$$

$$= 80 \text{ cm}^2$$

Thus, the area of the triangle is 80 cm^2 .

18. Question

In a classroom, a madam multiplied a number by $\frac{4}{5}$ instead of $\frac{5}{4}$. What is the error percentage in the calculation?

- a) 64 %

- b) 25 %
- c) 36 %
- d) 48 %
- e) None of these

Answer: C

Explanation:

$$4/5, 5/4$$

$$\text{LCM} = 20$$

$$4/5 \times 20 = 16$$

$$5/4 \times 20 = 25$$

$$\begin{aligned} \text{Required percentage} &= (25 - 16) / 25 \times 100 \% \\ &= 36\% \end{aligned}$$

Thus, the error is = 36 %

19. Question

A boy did a piece of work in 3 days. That piece of work was done by a woman in 4 days. If the boy and woman worked together, they got total wages of Rs. 3500. How much did the woman get?

- a) 1500
- b) 2000
- c) 1000

d) 1200

e) None of these

Answer: A

Explanation:

Bo y Wom an

Time	3	4
Efficiency	4	3

(Time and efficiency are inversely proportional)

$$\begin{aligned} \text{Woman get} &= 3500 \times \frac{3}{7} \\ &= 1500 \end{aligned}$$

Thus, the woman gets the wages of Rs 1500.

20. Question

Pritam covers a certain distance between his uncle's house and the shopping mall by walking. With an average speed of 15 km/hr, he is late by 10 mins. If he increases his speed to 20 km/hr, he reaches the gym 5 min earlier. What is the distance between his uncle's house and the shopping mall?

a) 10 km

b) 12 km

c) 15 km

d) 18 km

e) 30 km

Answer: C

Explanation:

Let the distance = x

Difference between time = $(10 + 5)$ min = $15/60$ hrs

According to question,

$$x / 15 - x / 20 = 1/4$$

$$4x - 3x = 15$$

$$x = 15$$

Thus, the distance is = 15 km

Directions (21-25): In the following question contains two equations as I and II. You have to solve both the equations and determine the relationship between them and give answers as,

a) $x > y$

b) $x \geq y$

c) $x < y$

d) $x \leq y$

e) $x = y$ or the relation cannot establish.

21. Question

I. $7x^2 + 10x + 3 = 0$

II. $2y^2 - 3y - 44 = 0$

Answer: E

Explanation:

$$7x^2 + 10x + 3 = 0$$

$$7x^2 + 7x + 3x + 3 = 0$$

$$(x + 1)(7x + 3) = 0$$

$$x = -3/7, -1/3$$

$$2y^2 - 3y - 44 = 0$$

$$2y^2 + 8y - 11y - 44 = 0$$

$$(y + 4)(2y - 11) = 0$$

$$y = 11/2, -4$$

Thus, the relationship can not be established.

22. Question

I. $x^2 - 11x + 28 = 0$

$$\text{II. } y^2 - 45y + 324 = 0$$

Answer :- C

Explanation :-

$$x^2 - 11x + 28 = 0$$

$$x^2 - 4x - 7x + 28 = 0$$

$$(x - 7)(x - 4) = 0$$

$$x = 4, 7$$

$$y^2 - 45y + 324 = 0$$

$$y^2 - 36y - 9y + 324 = 0$$

$$(y - 9)(y - 36) = 0$$

$$y = 9, 36$$

$$x < y$$

Thus, the correct option is C.

23.Question

$$\text{I. } x^2 + 14x + 60 = 15$$

$$\text{II. } y^2 = y + 30$$

Answer: D

Explanation:

$$x^2 + 14x + 60 = 15$$

$$x^2 + 14x + 45 = 0$$

$$x^2 + 5x + 9x + 45 = 0$$

$$(x + 5)(x + 9) = 0$$

$$x = -5, -9$$

$$y^2 = y + 30$$

$$y^2 - y - 30 = 0$$

$$y^2 - 6y + 5y - 30 = 0$$

$$(y - 6)(y + 5) = 0$$

$$y = 6, -5$$

$$x \leq y$$

Thus, the correct option is D.

24. Question

I. $21x^2 + 2x - 3 = 0$

II. $12y^2 - y - 6 = 0$

Answer: E

Explanation:

$$21x^2 + 2x - 3 = 0$$

$$21x^2 - 7x + 9x - 3 = 0$$

$$(7x + 3)(3x - 1) = 0$$

$$x = 1/3, -3/7$$

$$12y^2 - y - 6 = 0$$

$$12y^2 - 9y + 8y - 6 = 0$$

$$(3y + 2)(4y - 3) = 0$$

$$y = 3/4, -2/3$$

Thus, the relationship can not be established

So the correct option is E.

25. Question

I. $2x^2 - 288 = 0$

II. $y^2 + 24x + 144 = 0$

Answer: B

Explanation:

$$2x^2 - 288 = 0$$

$$x^2 - 144 = 0$$

$$(x + 12)(x - 12) = 0$$

$$x = 12, -12$$

$$y^2 + 24x + 144 = 0$$

$$(y + 12)^2 = 0$$

$$y + 12 = 0$$

$$y = -12$$

$$x \geq y$$

Thus, the correct option is B

Directions (26–30):

Read the following information carefully and answer the questions. The given information shows the total number of AC and Cooler sold by four different seller P, Q, R, S.

AC: The ratio of the number of AC sold by sellers P and Q is 1 : 2 respectively. The difference between the number of AC sold by P and S is 90. The number of AC sold by R is 20 % less than that of shop S. Number of AC sold by R is 60 % of the number of AC sold by Q.

Cooler: Average number of Cooler sold by all sellers is 175 and the number of cooler sold by sellers P is two times the number of coolers sold by R. Ratio of the number of coolers sold by P and S is 5 : 4 respectively. The number of coolers sold by Q is 80 more than that of S.

26. Question

Seller P's selling of cooler is what percentage of total selling of cooler by four seller together?

a) $200/7$ %

b) $100/3$ %

c) $300/7$ %

d) $400/17$ %

e) None of these

Answer: B

Explanation:

For AC,

$$P : Q = 1 : 2$$

$$P - S = 90$$

$$R : S = 80 : 100 = 4 : 5 \quad (\times 3) \quad = 12 : 15$$

$$R : Q = 60 : 100 = 3 : 5 \quad (\times 2) = 6 : 10 \quad (\times 2) = 12 : 20$$

$$P : Q = 1 : 2 \quad (\times 5) = 5 : 10 \quad (\times 2) \quad = 10 : 20$$

$$P : Q : R : S = 10 : 20 : 12 : 15$$

$$P - S = (15 - 10) = 5$$

$$5 \text{ unit} = 90$$

$$1 \text{ unit} = 90 \div 5 = 18$$

$$P = 18 \times 10 = 180$$

$$Q = 18 \times 20 = 360$$

$$R = 18 \times 12 = 216$$

$$S = 18 \times 15 = 270$$

For Cooler,

$$P + Q + R + S = 175 \times 4 = 700$$

$$P = 2R$$

$$P : R = 2 : 1 \quad (\times 5) = 10 : 5$$

$$P : S = 5 : 4 \quad (\times 2) = 10 : 8$$

$$P : R : S = 10x : 5x : 8x$$

$$Q = (S + 80)$$

$$= (8x + 80)$$

$$P + Q + R + S = 10x + 8x + 80 + 5x + 8x$$

$$= 31x + 80$$

$$31x + 80 = 700$$

$$31x = 620$$

$$x = 20$$

$$\therefore P = 10 \times 20 = 200$$

$$\therefore Q = 8 \times 20 + 80 = 240$$

$$\therefore R = 5 \times 20 = 100$$

$$\therefore S = 8 \times 20 = 160$$

(Above explanation is for question 26 to 31)

$$\text{Required \%} = 200 / 700 \times 100 \%$$

$$= 200/7 \%$$

∴ The required percentage = $\frac{200}{7} \%$

27. Question:

Find out the ratio of total selling of cooler by four sellers to the selling of AC by seller P, Q and S together.

a) 40 : 41

b) 51 : 61

c) 70 : 81

d) 1 : 3

e) 3 : 5

Answer : C

Explanation :-

$$\begin{aligned} (P + Q + S) \text{ 's selling of AC} &= (180 + 360 + 270) \\ &= 810 \end{aligned}$$

$$\begin{aligned} \text{Required Ratio} &= 700 : 810 \\ &= 70 : 81 \end{aligned}$$

∴ The ratio between selling of Cooler by all and selling of AC by P, Q and S = 70 : 81

28. Question

Find out the ratio between the (P + Q)'s selling of AC and (R+Q) 's selling of cooler.

a) 13 : 17

b) 19 : 23

c) 33 : 23

d) 27 : 22

e) None of these



Answer

Explanation :

$$\text{AC : Cooler} = (180 + 360) : (100 + 240)$$

$$= 540 : 440$$

$$= 27 : 22$$

\therefore The ratio between (P + Q) 's selling of AC and (R + Q) 's selling of Cooler is = 27 : 22

29. Question

Find the difference between the selling of AC and Cooler by seller (R + S) together.

a) 226

b) 200

c) 250

d) 175

e) 225

Answer :A

Explanation :-

$$\begin{aligned} \text{AC} - \text{Cooler} &= (216 + 270) - (100 + 160) \\ &= 486 - 260 \\ &= 226 \end{aligned}$$

∴ The difference between the selling of AC and Cooler by seller (R + S) = 226

30. Question

Total AC and Cooler selling by Q is what percentage of total selling of Cooler by the four sellers.

- a) $300/7$ %
- b) $500/3$
- c) $600/7$
- d) $800/3$
- e) None of these

Answer :C

Explanation :

$$\begin{aligned} \text{Required \%} &= (240 + 360) / 700 \times 100\% \\ &= 600/7 \% \end{aligned}$$

∴ Thus the correct answer is = $600/7$ % (option C)

31. Question

Which seller's selling of AC and Cooler together is maximum?

- a) P

b) Q

c) R

d) S

Answer :B

Explanation :

$$P = 180 + 200 = 380$$

$$Q = 360 + 240 = 600$$

$$R = 216 + 100 = 316$$

$$S = 270 + 160 = 430$$

∴ The maximum selling by the seller = Q

32. Question

Sakshi and Simran started a business investing amounts of 18500 and 22500 respectively. If Simran's share in the profit earned by them is 2700, then what is the total profit earned by them together?

a) 4000

b) 4530

c) 4780

d) 4920

e) 5200

Answer : D

Explanation :-

$$\begin{aligned}\text{Investment ratio of Sakshi : Simran} &= 18500 : 22500 \\ &= 37 : 45\end{aligned}$$

According to question,

$$45x = 2700 \quad (\text{investment ratio} = \text{profit ratio})$$

$$x = 60$$

$$\therefore \text{Profit of Sakshi} = 37 \times 60$$

$$= 2220$$

$$\therefore \text{Total profit} = (2220 + 2700)$$

$$= 4920$$

$$\therefore \text{The total profit earned by together} = 4920$$

33. Question

Mother's age 9 years ago and daughter's age 6 years hence is equal. The average age of mother, daughter, and another boy is 27 years. The Boy is 9 years younger than his mother. Find the age of Daughter 10 years hence.

- a) 30 years
- b) 25 years
- c) 28 years
- d) 32 years
- e) 35 years

Answer : A

Explanation :

According to question,

$$\text{Mother} - \text{Daughter} = 15$$

$$\text{Mother} + \text{Daughter} + \text{Boy} = 3 \times 27 = 81 \text{ years}$$

Let, Daughter 's age = x years

$$\text{Mother's age} = x + 15 \text{ years}$$

$$\text{Boy's age} = (x + 15) - 9 \text{ years} = (x + 6) \text{ years}$$

$$x + (x + 15) + (x + 6) = 81$$

$$3x + 21 = 81$$

$$3x = 60$$

$$x = 20$$

\therefore Daughter's age 10 years hence = $(20 + 10)$ years

$$= 30 \text{ years}$$

34. Question

Find the value of,

$$6000 - 999\left(\frac{1}{7}\right) - 999\left(\frac{2}{7}\right) - 999\left(\frac{3}{7}\right) - 999\left(\frac{4}{7}\right) - 999\left(\frac{5}{7}\right) - 999\left(\frac{6}{7}\right).$$

a) 5999

b) 5997

c) 9

d) 3

e) none of these

Answer :- C

Explanation :-

$$6000 - 999(1/7) - 999(2/7) - 999(3/7) - 999(4/7) - 999(5/7) - 999(6/7)$$

$$= 6000 - \{(999 + 999 + 999 + 999 + 999 + 999) + (1/7 + 2/7 + 3/7 + 4/7 + 5/7 + 6/7)\}$$

$$= 6000 - (6 \times 999) + 21/7$$

$$= 6000 - 6(1000 - 1) + 3$$

$$= 6000 - 6000 + 6 + 3$$

$$= 9$$

35.Question

In the given fractions, find out the sum of the largest and the smallest fractions.

$$1/2, 5/7, 3/4, 4/9, 6/11$$

Answer :-

Explanation :-

$$1/2 = 0.50$$

$$5/7 = 0.71$$

$$3/4 = 0.75$$

$$4/9 = 0.44$$

$$6/11 = 0.54$$

Largest fraction = $3/4$

Smallest fraction = $1/2$

Sum = $3/4 + 1/2$

= $5/4$

= 1.25

∴ The sum of the largest and smallest fractions is = 1.25

GRAWAL

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