

AJ INSTITUTE OF ENGINEERING & TECHNOLOGY

DEPT. OF TRAINING & PLACEMENT

Test-9

Problems on Ages, logical reasoning on coding & decoding

Wednesday 3rd July 2024

1) A mother is twice as old as her son. If 20 years ago, the age of the mother was 10 times the age of the son, what is the present age of the mother?

- A. 38 years
- B. 40 years
- C. 43 years
- D. 45 years

The Correct answer is (D)

Explanation:

Let the age of son = X years

∴ Age of mother would be = 2X

As per question 20 years ago;

$$10(X - 20) = 2X - 20$$

$$10X - 200 = 2X - 20$$

$$10X - 2X = -20 + 200$$

$$8X = 180$$

$$X = \frac{180}{8} = 22.5 \text{ years}$$

∴ Age of mother = $22.5 \times 2 = 45$ years

2) Four years ago a man was 6 times as old as his son. After 16 years he will be twice as old as his son. What is the present age of man and his son?

- A. 34, 9
- B. 33, 7
- C. 35, 5
- D. 36, 6

The Correct answer is (A)

Explanation:

Let age of son 4 years ago be = X

So, age of man 4 years ago would be = 6X

As per question after 16 years;

2* age of son = age of man

$$2(X + 4 + 16) = (6X + 4 + 16)$$

$$2X + 40 = 6X + 20$$

$$2X - 6X = 20 - 40$$

$$- 4X = - 20$$

$$X = 5 \text{ years}$$

$$\therefore \text{Present age of son} = 5 + 4 = 9 \text{ years}$$

$$\text{Present age of man} = 6X + 4 = 6*5 + 4 = 30 + 4 = 34 \text{ years}$$

3) The ratio of the ages of Minu and Meera is 4:2. If the sum of their ages is 6 years, find the ratio of their ages after 8 years.

- A. 8:6
- B. 6:5
- C. 6:4
- D. 7:5

The Correct answer is (B)

Explanation:

Let the age of Minu is 4X and age of Meera 2X.

As per question; $4X + 2X = 6$

$$6X = 6$$

$$X = 1$$

$$\therefore \text{Minu's age} = 4*1 = 4 \text{ years}$$

$$\text{Meera's age} = 2*1 = 2 \text{ years}$$

Ratio of their ages after 8 years;

$$= (4+8): (2+8)$$

$$= 12: 10$$

$$= 6:5$$

4) Ten years ago, the sum of ages of a father and his son was 34 years. If the ratio of present ages of the father and son is 7:2, find the present age of the son.

- A. 12 years
- B. 11 years
- C. 10 years
- D. 8 years

The Correct answer is (A)

Explanation:

Let the present age of the father is $7X$ and present age of son is $2X$.

As per question, ten years ago;

$$(7X - 10) + (2X - 10) = 34$$

$$7X - 10 + 2X - 10 = 34$$

$$9X = 34 + 20$$

$$9X = 54$$

$$X = 6$$

$$\therefore \text{Present age of son} = 2 * 6 = 12 \text{ years}$$

5) The sum of the ages of father and his son is 44 years. If 6 years after the father will be 3 times as old as his son, what are their present ages?

- A. 36, 8
- B. 38, 6
- C. 35, 9
- D. 37, 7

The Correct answer is (A)

Explanation:

Let present age of son is X and present age of father is $(44 - X)$.

As per question, after 6 years;

$$3(X+6) = (44 - X) + 6$$

$$3X + 18 = 50 - X$$

$$4X = 50 - 18$$

$$4X = 32$$

$$X = 8 \text{ years}$$

$$\therefore \text{Present age of son} = 8 \text{ years}$$

$$\text{And, present of father} = 44 - 8 = 36 \text{ years}$$

6) The sum of ages of 5 children born at the intervals of 3 years each is 50 years. What is the age of the youngest child?

- A. 4 years
- B. 8 years
- C. 10 years
- D. None of these

Answer: Option (A)

Explanation:

Let the ages of children be x , $(x + 3)$, $(x + 6)$, $(x + 9)$ and $(x + 12)$ years.

Then, $x + (x + 3) + (x + 6) + (x + 9) + (x + 12) = 50$

$$\Rightarrow 5x = 20$$

$$\Rightarrow x = 4.$$

\therefore Age of the youngest child = $x = 4$ years.

7) A father said to his son, "I was as old as you are at the present at the time of your birth". If the father's age is 38 years now, the son's age five years back was:

- A. 14 years
- B. 19 years
- C. 33 years
- D. 38 years

Answer: Option (A)

Explanation:

Let the son's present age be x years. Then, $(38 - x) = x$

$$\Rightarrow 2x = 38.$$

$$\Rightarrow x = 19.$$

\therefore Son's age 5 years back $(19 - 5) = 14$ years.

8) Present ages of Sameer and Anand are in the ratio of 5 : 4 respectively. Three years hence, the ratio of their ages will become 11 : 9 respectively. What is Anand's present age in years?

- A. 24
- B. 27
- C. 40
- D. Cannot be determined

Answer: Option (A)

Explanation:

Let the present ages of Sameer and Anand be $5x$ years and $4x$ years respectively.

$$\text{Then, } \frac{5x + 3}{4x + 3} = \frac{11}{9}$$

$$\Rightarrow 9(5x + 3) = 11(4x + 3)$$

$$\Rightarrow 45x + 27 = 44x + 33$$

$$\Rightarrow 45x - 44x = 33 - 27$$

$$\Rightarrow x = 6.$$

\therefore Anand's present age = $4x = 24$ years.

9) A man is 24 years older than his son. In two years, his age will be twice the age of his son. The present age of his son is:

- A. 14 years
- B. 18 years
- C. 20 years
- D. 22 years

Answer: Option (D)

Explanation:

Let the son's present age be x years. Then, man's present age = $(x + 24)$ years.

$$\therefore (x + 24) + 2 = 2(x + 2)$$

$$\Rightarrow x + 26 = 2x + 4$$

$$\Rightarrow x = 22.$$

10) Six years ago, the ratio of the ages of Kunal and Sagar was 6 : 5. Four years hence, the ratio of their ages will be 11 : 10. What is Sagar's age at present?

- A. 16 years
- B. 18 years
- C. 20 years
- D. Cannot be determined

Answer: Option **(R)**

Explanation:

Let the ages of Kunal and Sagar 6 years ago be $6x$ and $5x$ years respectively.

$$\text{Then, } \frac{(6x + 6) + 4}{(5x + 6) + 4} = \frac{11}{10}$$

$$\Rightarrow 10(6x + 10) = 11(5x + 10)$$

$$\Rightarrow 5x = 10$$

$$\Rightarrow x = 2.$$

$$\therefore \text{Sagar's present age} = (5x + 6) = 16 \text{ years.}$$

11) The sum of the present ages of a father and his son is 60 years. Six years ago, father's age was five times the age of the son. After 6 years, son's age will be:

- A. 12 years
- B. 14 years
- C. 18 years
- D. 20 years

Answer: Option **(D)**

Explanation:

Let the present ages of son and father be x and $(60 - x)$ years respectively.

$$\text{Then, } (60 - x) - 6 = 5(x - 6)$$

$$\Rightarrow 54 - x = 5x - 30$$

$$\Rightarrow 6x = 84$$

$$\Rightarrow x = 14.$$

$$\therefore \text{Son's age after 6 years} = (x + 6) = 20 \text{ years..}$$

12) Age of father is seven times the age of his son. In the next 10 years, the age of father will be three times the age of his son. What is the age of father now?

- A. 35 years
- B. 37 years
- C. 39 years
- D. 41 years

The Correct answer is (A)

Explanation:

Let the age of son is X and age of father 7X

Age of son after 10 years = $X + 10$

Age of father after 10 years = $7X + 10$

As per question, after 10 years;

$$3(X + 10) = 7X + 10$$

$$3X + 30 = 7X + 10$$

$$4X = 20$$

$$X = 5 \text{ years}$$

$$\therefore \text{Age of father now} = 7 * 5 = 35 \text{ years}$$

13) Two years ago the ratio of ages of Naresh and Suresh was 3:2. If one year hence, the ratio of their ages will be 7:5, what is the sum of their present ages?

- A. 30 years
- B. 32 years
- C. 34 years
- D. 36 years

The Correct answer is (C)

Explanation:

Let two years ago, the ages of Naresh and Suresh was 3X and 2X.

So one year hence, the ages of Naresh and Suresh would be $3X + 3$ and $2X + 3$ respectively.

As per question;

$$\frac{3X + 3}{2X + 3} = \frac{7}{5}$$

$$15X + 15 = 14X + 21$$

$$X = 6$$

$$\text{Present age of Naresh} = 3 * 6 + 3 = 21 \text{ years}$$

$$\text{Present age of Suresh} = 2 * 6 + 3 = 15 \text{ years}$$

$$\therefore \text{Sum of their present ages} = 21 + 15 = 36 \text{ years}$$

14) The sum of the present age of mother and her son is 60 years. Six years ago, the age of the mother was five times the age of her son. What will be the age of her son after 6 years?

- A. 23 years
- B. 22 years
- C. 20 years
- D. 21 years

Answer: C

Explanation:

Let the present age of the son = x

Then, the present age of the mother = $(60 - x)$

As per question:

Six years ago mother's age was 5 times the age of her son:

So, $(60 - x) - 6 = 5(x - 6)$

$$54 - x = 5x - 30$$

$$84 = 6x$$

$$x = 84/6$$

$$x = 14 \text{ Years}$$

Age of son after 6 years

$$= x + 6$$

$$= 14 + 6$$

$$= 20 \text{ Years}$$

15) Six years ago the ratio of the ages of Preeti and Ruchi was 6: 5. After four years the ratio of their ages will be 11: 10. What is Ruchi's present age?

- A. 18 years
- B. 17 years
- C. 16 years
- D. 15 years

Answer: C

Explanation:

The ratio of the ages of Preeti and Ruchi six years ago = 6:5

According to Question:

six years ago the age of Preeti = $6x$

Six years ago age of Ruchi = $5x$

after 4 years, the ratio of their ages = 11:10

$$(6x+10):(5x+10)=11:10$$

$$10(6x+10) = 11(5x+10)$$

$$60x + 100 = 55x + 110$$

$$5x = 10$$

$$x = 10/5 = 2$$

Ruchi's present age

$$= (5x+6) = 5 \times 2 + 6 = 16 \text{ years}$$

16) Sachin is younger than Rahul by 7 years. If their ages are in the respective ratio of 7 : 9, how old is Sachin?

- A. 16 years
- B. 18 years
- C. 28 years
- D. 24.5 years

Answer: 24.5 years

Explanation

Let Rahul's age be x years.

Then, Sachin's age = $(x - 7)$ years.

$$\frac{(x-7)}{(x)} = \frac{7}{9}$$

$$\Rightarrow 9x - 63 = 7x$$

$$\Rightarrow 2x = 63$$

$$\Rightarrow x = 31.5$$

Hence, Sachin's Age = $(x - 7)$ years = 24.5 years

17) Ayesha's father was 38 years of age when she was born while her mother was 36 years old when her brother four years younger to her was born. What is the difference between the ages of her parents?

- A. 2 years
- B. 4 years
- C. 6 years
- D. 8 years

Answer: 6 years

Explanation

Mother's age when Ayesha's brother was born = 36 years.

Father's age when Ayesha's brother was born = $(38 + 4) = 42$ years.

\therefore Required difference = $(42 - 36)$ years = 6 years.

18) If in a certain language, NOIDA is coded as OPJEB, how is DELHI coded in that language?

- A. CDKGH
- B. EFMIJ
- C. FGJNK
- D. IHLED

Answer: B

Explanation:

Each letter in the word NOIDA is moved one step forward to form the code OPJEB. So, in DELHI, D will be coded as E, E as F, L as M, H as I, I as J. Thus, the code becomes EFMIJ.

19) If HOT is coded as GNS, How is COLD coded?

- A. BNKC
- B. DPME
- C. EQNF
- D. FROG

Answer: A

Explanation:

Each letter in the word HOT is moved one step backward to form the code GNS. So, following the same rule, C will be coded as B, O as N, L as K, and D as C. Thus, the code becomes BNKC.

20) In a certain code, PAPER is written as QPARE. How is TABLE written in that code?

- A. UBALE
- B. UBCMF
- C. UZAKD
- D. UBAEL

Answer: D

Explanation:

The first letter of the word PAPER is moved one step forward and the next two letters have exchanged their positions and so on. So, following the same coding, T will be coded as U, A will be coded as B, B will be coded as A, L will be coded as E and E will be coded as L. Thus, TABLE is written as UBAEL in that code.

21) In a certain code, ARMY is written as ASOB. How is JUDGE written in that code?

- A. KVEHF
- B. JVFJI
- C. ITCFD
- D. JWGKJ

Answer: B

Explanation:

The first letter in the word ARMY remains same and the second, third and fourth letters are moved one, two and three steps forward respectively. Following the same coding, J will be coded as J, U as V, D as F, G as J and E as I. So, the JUDGE is written as JVFJI in that code.

22) In a certain code, 'REACTION' is written as 'RAETCOIN'. How is 'BEAUTY' written in that code?

- A. BAETUY

- B. BTUAEY
- C. BTAUEY
- D. None of these

Answer: A

Explanation:

The first and last letter of the given word remains the same. The letters between these letters interchange their positions in a pair of two. So, following the same rule, B and Y will remain the same, and the EA becomes AE; UT becomes TU. So, the BEAUTY will be written as BAETUY in this code.

23) In a certain code 'LION' is written as LMGJ. How is 'MILK' written in that code?

- A. JKFL
- B. IJGK
- C. KLIM
- D. KILM

Answer: B

Explanation:

The order of the words is reversed, and then each letter is moved two steps backward. The reverse of MILK is KLIM. On moving letters two steps backward, K becomes I; L becomes J; I becomes G and M becomes K.

24) In a certain code 'WRITER' is written as 'SFUJSX'. How is 'DOCTOR' written in that code?

- A. SUPPDE
- B. SPPUDE
- C. SPUDPE
- D. SPUPDE

Answer: C

Explanation:

The order of the words is reversed and then each letter is moved one step forward. The reverse of the DOCTOR is ROTCOD. On moving letters one step forward R becomes S; O becomes P; T becomes U; C becomes D; O becomes P, and D becomes E. So, the DOCTOR will be written as SPUDPE in that code.

25) If every alternate letter from B onwards is written in small letters, whereas the other letters are written in capitals, how will the 3rd month from May be coded?

- A. JuLy
- B. jULY
- C. AuGuSt
- D. AUGUS^t

Answer: D

Explanation:

As per the question, the small letters are b,d,f,h,j,l,n,p,r,t,v,x,z. So, the third month from May, which is August, will be coded as AUGUS^t.

26) If the letters of the word 'BUILDING' are arranged alphabetically, which letter would be farthest from the first letter of the word?

- A. D
- B. U
- C. I
- D. N

Answer: B

Explanation:

U is the farthest letter from the first letter of the word. It is the 21st letter of the English alphabets; remaining words of the word come before U in the English alphabets.

27) In a certain code, BAT is written as PATB, and LOST is written as POSTL. How is WING written in that code?

- A. PGNIW
- B. PINGW
- C. PWING
- D. None of these

Answer: B

Explanation:

The first letter of the word is moved to the last position, and P is placed at the start to form the code. So, WING is written as PINGW in that code.

28) IF GUJRAT is written as GGJJAA, how will CHENNAI be written in that code?

- A. CCHHAAII
- B. CCEEAAII
- C. CCEENNII
- D. None of these

Answer: C

Explanation:

The letters at the alternate places are repeated twice to code GUJRAT as GGJJAA. So, the CHENNAI will be written as CCEENNII in this code.

29) If HAT is coded as 8120, how is BAN coded in this code?

- A. 2124
- B. 2114
- C. 2021
- D. 2020

Answer: B

Explanation:

The letters of the word are assigned a number which shows their positions in the English alphabets. B is at 2nd position, A is at 1st position, and N is at 14th position in the English alphabets. So, in this code, the word, BAN is coded as 2114.

30) If POLICE is coded as 60 in a certain code, what is the code for 'Army'?

- A. 65
- B. 70
- C. 55
- D. 57

Answer: D

Explanation:

The code is derived by adding the alphabetical positions of the letters of the given word in English Alphabets.
So, the code for Army is 57, as the sum of positions of A, R, M and Y is $1+18+13+25 = 57$