AGES

Important Formulas on "Problems on Ages" :

1. If the current age is x, then n times the age is nx.
2. If the current age is x, then age n years later/hence = $x + n$.
3. If the current age is x, then age n years ago = $x - n$.
4. The ages in a ratio $a : b$ will be ax and bx.
5. If the current age is x, then $\frac{1}{n}$ of the age is $\frac{x}{n}$.

1. Father is aged three times more than his son Ronit. After 8 years, he would be two and a half times of Ronit's age. After further 8 years, how many times would he be of Ronit's age?

   A. 2 times

   B. $2\frac{1}{2}$ times

   C. $2\frac{3}{4}$ times

   D. 3 times

   Answer: Option **A**
   Explanation:
   Let Ronit's present age be x years. Then, father's present age =(x + 3x) years = 4x years.
   $\therefore \quad (4x + 8) = \frac{5}{2}(x + 8)$
   $\Rightarrow 8x + 16 = 5x + 40$
   $\Rightarrow 3x = 24$
   $\Rightarrow x = 8.$
   Hence, required ratio = $\frac{(4x + 16)}{(x + 16)} = \frac{48}{24} = 2.$

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2. 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.

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3. 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.

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4. A is two years older than B who is twice as old as C. If the total of the ages of A, B and C be 27, then how old is B?

   A. 7

   B. 8

   C. 9

   D. 10

   E. 11

   Answer: Option **D**
   Explanation:
   Let C's age be x years. Then, B's age = $2x$ years. A's age = $(2x + 2)$ years.
   $\therefore (2x + 2) + 2x + x = 27$
   $\Rightarrow 5x = 25$
   $\Rightarrow x = 5$.
   Hence, B's age = $2x = 10$ years.

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5. 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

E. None of these

Answer: Option **A**
Explanation:
Let the present ages of Sameer and Anand be $5x$ years and $4x$ years respectively.
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.

6. 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.
$\therefore (x + 24) + 2 = 2(x + 2)$
$\Rightarrow x + 26 = 2x + 4$
$\Rightarrow x = 22.$

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7. 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

E. None of these

Answer: Option **A**
Explanation:
Let the ages of Kunal and Sagar 6 years ago be $6x$ and $5x$ years respectively.
Then, $\frac{(6x + 6) + 4}{(5x + 6) + 4} = \frac{11}{10}$

$\Rightarrow$ 10(6x + 10) = 11(5x + 10)
$\Rightarrow$ 5x = 10
$\Rightarrow$ x = 2.
$\therefore$ Sagar's present age = (5x + 6) = 16 years.

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8. 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.
   Then, (60 - x) - 6 = 5(x - 6)
   $\Rightarrow$ 54 - x = 5x - 30
   $\Rightarrow$ 6x = 84
   $\Rightarrow$ x = 14.
   $\therefore$ Son's age after 6 years = (x+ 6) = 20 years..

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9. At present, the ratio between the ages of Arun and Deepak is 4 : 3. After 6 years, Arun's age will be 26 years. What is the age of Deepak at present ?

   A. 12 years

   B. 15 years

   C. 19 and half

   D. 21 years

   Answer: Option **B**
   Explanation:
   Let the present ages of Arun and Deepak be 4x years and 3x years respectively. Then,
   4x + 6 = 26 $\Leftrightarrow$ 4x = 20
   x = 5.
   $\therefore$ Deepak's age = 3x = 15 years.

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10. 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

E. None of these

Answer: Option **D**
Explanation:
Let Rahul's age be x years.
Then, Sachin's age = $(x - 7)$ years.
$\therefore \quad \frac{x - 7}{x} = \frac{7}{9}$
$\Rightarrow 9x - 63 = 7x$
$\Rightarrow 2x = 63$
$\Rightarrow x = 31.5$
Hence, Sachin's age $=(x - 7) = 24.5$ years.

11. The present ages of three persons in proportions 4 : 7 : 9. Eight years ago, the sum of their ages was 56. Find their present ages (in years).

A. 8, 20, 28

B. 16, 28, 36

C. 20, 35, 45

D. None of these

Answer: Option **B**
Explanation:
Let their present ages be $4x$, $7x$ and $9x$ years respectively.
Then, $(4x - 8) + (7x - 8) + (9x - 8) = 56$
$\Rightarrow 20x = 80$
$\Rightarrow x = 4.$
$\therefore$ Their present ages are $4x = 16$ years, $7x = 28$ years and $9x = 36$ years respectively.

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12. 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: Option **C**
Explanation:

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

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

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

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13. A person's present age is two-fifth of the age of his mother. After 8 years, he will be one-half of the age of his mother. How old is the mother at present?

A. 32 years

B. 36 years

C. 40 years

D. 48 years

Answer: Option **C**
Explanation:
Let the mother's present age be x years.
Then, the person's present age = $\left(\frac{2}{5}x\right)$ years.
$\therefore \left(\frac{2}{5}x + 8\right) = \frac{1}{2}(x + 8)$
$\Rightarrow 2(2x + 40) = 5(x + 8)$
$\Rightarrow x = 40$.

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14. Q is as much younger than R as he is older than T. If the sum of the ages of R and T is 50 years, what is definitely the difference between R and Q's age?

A. 1 year

B. 2 years

C. 25 years

D. Data inadequate

E. None of these

Answer: Option **D**
Explanation:
Given that:

1. The difference of age b/w R and Q = The difference of age b/w Q and T.

2. Sum of age of R and T is 50 i.e. (R + T) = 50.

Question: R - Q = ?.

Explanation:

R - Q = Q - T

(R + T) = 2Q

Now given that, (R + T) = 50

So, 50 = 2Q and therefore Q = 25.

Question is (R - Q) = ?

Here we know the value(age) of Q (25), but we don't know the age of R.

Therefore, (R-Q) cannot be determined.

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15. The age of father 10 years ago was thrice the age of his son. Ten years hence, father's age will be twice that of his son. The ratio of their present ages is:

    A. 5 : 2

    B. 7 : 3

    C. 9 : 2

    D. 13 : 4

    Answer: Option **B**
    Explanation:
    Let the ages of father and son 10 years ago be $3x$ and x years respectively.
    Then, $(3x + 10) + 10 = 2[(x + 10) + 10]$
    $\Rightarrow 3x + 20 = 2x + 40$
    $\Rightarrow x = 20.$
    $\therefore$ Required ratio = $(3x + 10) : (x + 10) = 70 : 30 = 7 : 3.$

DATA SUFFICIENCY - 1

Each of the questions given below consists of a statement and / or a question and two statements numbered I and II given below it. You have to decide whether the data provided in the statement(s) is / are sufficient to answer the given question. Read the both statements and

- Give answer (A) if the data in Statement I alone are sufficient to answer the question, while the data in Statement II alone are not sufficient to answer the question.
- Give answer (B) if the data in Statement II alone are sufficient to answer the question, while the data in Statement I alone are not sufficient to answer the question.
- Give answer (C) if the data either in Statement I or in Statement II alone are sufficient to answer the question.
- Give answer (D) if the data even in both Statements I and II together are not sufficient to answer the question.
- Give answer(E) if the data in both Statements I and II together are necessary to answer the question.

1. What is Sonia's present age?

   I. Sonia's present age is five times Deepak's present age.

   II. Five years ago her age was twenty-five times Deepak's age at that time.

A. I alone sufficient while II alone not sufficient to answer

B. II alone sufficient while I alone not sufficient to answer

C. Either I or II alone sufficient to answer

D. Both I and II are not sufficient to answer

E. Both I and II are necessary to answer

Answer: Option **E**

Explanation:

I. $S = 5D \Rightarrow D = \frac{S}{5}$ ....(i)

II. $S - 5 = 25 (D - 5) \Leftrightarrow S = 25D - 120$ ....(ii)

Using (i) in (ii), we get $S = \left(25 \times \frac{S}{5}\right) - 120$

$\Rightarrow 4S = 120.$

$\Rightarrow S = 30.$

Thus, I and II both together give the answer. So, correct answer is (E).

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2. Average age of employees working in a department is 30 years. In the next year, ten workers will retire. What will be the average age in the next year?

I. Retirement age is 60 years.

II. There are 50 employees in the department.

A. I alone sufficient while II alone not sufficient to answer

B. II alone sufficient while I alone not sufficient to answer

C. Either I or II alone sufficient to answer

D. Both I and II are not sufficient to answer

E. Both I and II are necessary to answer

Answer: Option **E**

Explanation:

I. Retirement age is 60 years.

II. There are 50 employees in the department.

Average age of 50 employees = 30 years.

Total age of 50 employees = (50 x 30) years = 1500 years.

Number of employees next year = 40.

Total age of 40 employees next year (1500 + 40 - 60 x 10) = 940.

Average age next year = $\frac{940}{40}$ years = $23\frac{1}{2}$ years.

Thus, I and II together give the answer. So, correct answer is (E).

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3. Divya is twice as old as Shruti. What is the difference in their ages?

I. Five years hence, the ratio of their ages would be 9 : 5.

II. Ten years back, the ratio of their ages was 3 : 1.

A. I alone sufficient while II alone not sufficient to answer

B. II alone sufficient while I alone not sufficient to answer

C. Either I or II alone sufficient to answer

D. Both I and II are not sufficient to answer

E. Both I and II are necessary to answer

Answer: Option **C**

Explanation:

Let Divya's present age be D years and Shruti's present age b S years

Then, D = 2 x S $\Leftrightarrow$ D - 2S = 0 ....(i)

I. $\frac{D + 5}{S + 5} = \frac{9}{5}$ ....(ii)

II. $\frac{D - 10}{S - 10} = \frac{3}{1}$ ....(iii)

From (ii), we get : 5D + 25 = 9S + 45 $\Leftrightarrow$ 5D - 9S = 20 ....(iv)

From (iii), we get : D - 10 = 3S - 30 $\Leftrightarrow$ D - 3S = -20 ....(v)

Thus, from (i) and (ii), we get the answer.

Also, from (i) and (iii), we get the answer.

$\therefore$ I alone as well as II alone give the answer. Hence, the correct answer is (C).

DATA SUFFICIENCY - 2

Each of the questions given below consists of a question followed by three statements. You have to study the question and the statements and decide which of the statement(s) is/are necessary to answer the question.

1. What is Arun's present age?

I. Five years ago, Arun's age was double that of his son's age at that time.

II. Present ages of Arun and his son are in the ratio of 11 : 6 respectively.

III. Five years hence, the respective ratio of Arun's age and his son's age will become 12 : 7.

A. Only I and II

B. Only II and III

C. Only I and III

D. Any two of the three

E. None of these

Answer: Option **D**

Explanation:

II. Let the present ages of Arun and his son be 11*x* and 6*x* years respectively.

I. 5 years ago, Arun's age = 2 x His son's age.

III. 5 years hence, $\frac{\text{Arun's Age}}{\text{Son's age}} = \frac{12}{7}$

Clearly, any two of the above will give Arun's present age.

$\therefore$ Correct answer is (D).

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2. What is Ravi's present age?

I. The present age of Ravi is half of that of his father.

II. After 5 years, the ratio of Ravi's age to that of his father's age will be 6 : 11.

III. Ravi is 5 years younger than his brother.

A. I and II only

B. II and III only

C. I and III only

D. All I, II and III

E. Even with all the three statements answer cannot be determined.

Answer: Option **A**

Explanation:

I. Let Ravi's present age be x years. Then, his father's present age = $2x$ years.

II. After 5 years, $\frac{\text{Ravi's age}}{\text{Father's age}} = \frac{6}{11}$

III. Ravi is younger than his brother.

From I and II, we get $\frac{x+5}{2x+5} = \frac{6}{11}$. This gives x, the answer.

Thus, I and II together give the answer. Clearly, III is redundant.

$\therefore$ Correct answer is (A).

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3. What is the present age of Tanya?

I. The ratio between the present ages of Tanya and her brother Rahul is 3 : 4 respectively.

II. After 5 years the ratio between the ages of Tanya and Rahul will be 4 : 5.

III. Rahul is 5 years older than Tanya.

A. I and II only

B. II and III only

C. I and III only

D. All I, II and III

E. Any two of the three

Answer: Option **E**

Explanation:

I. Let the present ages of Tanya and Rahul be $3x$ years and $4x$ years.

II. After 5 years, (Tanya's age) : (Rahul's age) = 4 : 5.

III. (Rahul's age) = (Tanya's age) + 5.

From I and II, we get $\frac{3x+5}{4x+5} = \frac{4}{5}$. This gives x.

$\therefore$ Tanya's age = $3x$ can be found. Thus, I and II give the answer.

From I and III, we get $4x = 3x + 5$. This gives x.

$\therefore$ Tanya's age = $3x$ can be found. Thus, I and III give the answer.

From III : Let Tanya's present age be t years.
Then Rahul's present age = $(t + 5)$ years.

Thus, from II and III, we get : $\frac{t}{t+5} = \frac{4}{5}$. This gives t.

Thus, II and III give the answer.

∴ Correct answer is (E).

DATA SUFFICIENCY - 3

Each of these questions is followed by three statements. You have to study the question and all the three statements given to decide whether any information provided in the statement(s) is redundant and can be dispensed with while answering the given question.

1. What will be the ratio between ages of Sam and Albert after 5 years?

I. Sam's present age is more than Albert's present age by 4 years.

II. Albert's present age is 20 years.

III. The ratio of Albert's present age to Sam's present age is 5 : 6.

A. Any two of I, II and III

B. II only

C. III only

D. I or III only

E. II or III only

Answer: Option **A**
Explanation:

Clearly, any two of the given statements will give the answer and in each case, the third is redundant.

∴ Correct answer is (A).View Answer Discuss in Forum Workspace Report

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2. What is the difference between the present ages of Ayush and Deepak?

I. The ratio between Ayush's present age and his age after 8 years 4 : 5.

II. The ratio between the present ages of Ayush and Deepak is 4 : 3.

III. The ratio between Deepak's present age and his age four years ago is 6 : 5.

A. Any two of I, II and III

B. I or III only

C. Any one of the three

D. All I, II and III are required

E. Even with all I, II and III, the answer cannot be obtained.

Answer: Option **A**