
Bipin Nambiar
(SBI PO 2018)
Shiraz Khan
(SBI Clerk 2018)
Kuldeep Yadav
(SBI PO 2018)
Rajat Saxena
(IBPS Clerk 2018)
Anupam Tyagi
(IBPS PO 2018)
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# Data Sufficiency Questions for SBI Clerk Mains, IBPS Clerk Mains, SBI PO Pre and IBPS PO Pre Exams.

## Data Sufficiency Quiz 15

**Directions: Each of the questions below consists of a question and three statements numbered I, II and III given below it. You have to decide whether the data provided in the statements are sufficient to answer the question. Read all the statements and give answer.**

**1.** Car A is moving behind car B in the same direction and the distance between them initially is 40 km and the speed of car B is 50 km/hr, then how long would car A take to cross car B. [Assume the length of the cars to be negligible]

**Statement I :** The time taken car B to cover a distance of 200 km is 4 hours.

**Statement II :** if the cars were moving in the opposite directions, towards each other, the relative speed of car A with respect to car B would have been 120 km/hr.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
D. If the data in both statements I and II together are necessary to answer the question
E. If the data given in both statements I and II together are not sufficient to answer the question.

**2.** A man rows a boat upstream for a certain distance at a speed of 18 km/hr. If the ratio of speed of man in still water to the speed of stream is 5 : 2, find the time taken to row a boat downstream to cover the same distance covered upstream.

**Statement I :** The total time taken by the man to cover upstream and downstream is 25/7 hours.

**Statement II :** The time taken to cover the distance upstream is 2.5 hours.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
D. If the data in both statements I and II together are necessary to answer the question
E. If the data given in both statements I and II together are not sufficient to answer the question.

**3.** Vivek mixes water and milk in an empty container A. Find the amount of water mixed by Vivek.

**Statement I :** The ratio of the amount of water and the amount of milk in the container A is 5 : 13, respectively after Vivek has mixed milk and water. Vivek sells 72 litres of the mixture and then adds 44 more litres of a mixture of water and milk in the container. After mixing 44 more litres of the mixture, the ratio of the amount of water and the amount of milk becomes 4 : 9, respectively.
**Statement II :** The ratio of the amount of water and the amount of milk in the container A is 5 : 13, respectively after Vivek has mixed milk and water. Vivek sells 72 litres of the mixture and then adds 44 more litres of a mixture of water and milk in the container in the ratio 5 : 6, respectively.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
D. If the data in both statements I and II together are necessary to answer the question
E. If the data given in both statements I and II together are not sufficient to answer the question.

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**4.** Water and alcohol have been added in an empty container. Find the amount of water that has been added in the container.

**Statement I :** The ratio in which water and alcohol have been added is 11 : 5, respectively and 160 litres of the mixture has been sold after mixing. Then 25 litres of water and 25 litres of alcohol are mixed in the container and the ratio of water and alcohol became 2 : 1, respectively.
**Statement II :** The ratio in which water and alcohol have been added is 11 : 5, respectively. If 80 litres of another mixture of water and alcohol has been added then the ratio of water and alcohol became 5 : 3, respectively.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
D. If the data in both statements I and II together are necessary to answer the question
E. If the data given in both statements I and II together are not sufficient to answer the question.

**5.** There is a cylindrical tank in a society in which water is stored. What is the height of the tank?

**Statement I:** The time taken to fill the tank through a pipe at a rate of 112 $m^3$ of water per minute is 22 minutes. The cost of painting the curved surface area of the tank at Rs. 4 per $m^2$ is Rs. 2816.
**Statement II:** The curved surface area of the tank is 704 $m^2$ and the time taken by a pipe to empty the tank is 28 minutes.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
D. If the data in both statements I and II together are necessary to answer the question
E. If the data given in both statements I and II together are not sufficient to answer the question.

**6.** The ratio of monthly incomes of Kapil and Vinay is 4 : 5 respectively and the ratio of their monthly savings is 1 : 2, respectively. What is the monthly expenditure of Vinay?

**Statement I:** The ratio of monthly income and monthly savings of Kapil is 4 : 1 respectively
**Statement II:** The monthly expenditure of Kapil and Vinay is equal.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
D. If the data in both statements I and II together are necessary to answer the question
E. If the data given in both statements I and II together are not sufficient to answer the question.

**7.** The total number of white earphones in boxes A and B combined is 14 and the total number of black earphones in boxes A and B combined is 14 respectively. If 2 earphones are picked from box B at random, what is the probability that both of them are black?
**Statement I:** The ratio of the number of white and black earphones in box A is 3 : 5 and in box B is 2 : 1.
**Statement II:** The difference between the number of white earphones in box B and black earphones in box A is 6.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question
D. If the data in both statements I and II together are necessary to answer the question
E. If the data given in both statements I and II together are not sufficient to answer the question.

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**8.** Vessels M and N contain 600 litres and 400 litres of mixture of oil and water respectively. It is known that the quantity of oil in vessel M is 5 times the quantity of water in vessel N. If 20% and 25% of the quantities from vessel M and vessel N, respectively are poured into a drum, then what would be the ratio of quantity of oil and water in the drum?

**Statement I :** The quantity of water in vessel M is equal to the quantity of oil in vessel N.
**Statement II:** The average of quantity of oil and water in vessel M is 300 litres.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question.
D. If the data in both statements I and II together are necessary to answer the question.
E. If the data given in both statements I and II together are not sufficient to answer the question.

**9.** Tank X and tank Y contain mixture of oil and water in the ratio of 9 : 11 and 3 : 7 respectively. 'x%' of the mixture is transferred from tank X to Y and after that 'x%' of the remaining mixture is transferred from tank X to Y. If the initial quantity in tank X and Y are 500 litres and 100 litres respectively, find x.

**Statement I :** Final quantity of oil in tank Y is 111 litres.
**Statement II :** The difference between the quantities of oil transferred from tank X to tank Y in the 2 transfers was 9 litres.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question.
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question.
D. If the data in both statements I and II together are necessary to answer the question.
E. If the data given in both statements I and II together are not sufficient to answer the question.

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**10.** A file contains mark sheets of class I, II, III, IV and V students. The number of mark sheets of class II and V students was 7 and 2 respectively. If randomly 2 mark sheets are selected, what is the probability that both of them are of class IV students?

**Statement I :** The number of mark sheets of class III and class V students was 2 and 3 less respectively than the average of number of mark sheets of class I and IV together.
**Statement II :** The number of mark sheets of class II students was equal to the sum of the number of mark sheets of students of class I and III.

A. If the data in statement I alone is sufficient to answer the question, while the data in statement II alone is not sufficient to answer the question
B. If the data in statement II alone is sufficient to answer the question, while the data in statement I alone is not sufficient to answer the question.
C. If the data either in statement I alone or in statement II alone is sufficient to answer the question.
D. If the data in both statements I and II together are necessary to answer the question.
E. If the data given in both statements I and II together are not sufficient to answer the question.

**Correct Answers:**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| B | C | D | A | A | E | A | A | C | D |

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## Explanations:

**1.** **Statement I :**
We can calculate the speed of car B by this statement but the speed of car B is already given in the question.
Therefore, statement I alone is not sufficient to answer the question
**Statement II :**
Speed of car B = 50 km/hr
Distance between car A and car B = 40 km
Relative speed = 120 km/hr
Speed of car A = 120 – 50 = 70 km/hr

Required time taken by car A to cross car B = $\frac{40}{70-50}$ = 2 hours

Therefore, statement II alone is sufficient to answer the question
So, the data in Statement II alone is sufficient to answer the question, while the data in Statement I alone is not sufficient to answer the question.
Hence, option B is correct.

**2.** **Statement I :**
Let the speed of man in still water be 5x and speed of stream be 2x
Upstream speed = 18 km/hr
So, 5x – 2x = 18
3x = 18
x = 6 km/hr
Downstream speed = 5x + 2x = 7x = 7 x 6 = 42 km/hr
Let the distance covered upstream be x km
So, the distance covered downstream be x km

So, $\frac{x}{18}+\frac{x}{42}=3\frac{4}{7}$

x = 45 km

Time taken to row a boat downstream to cover the same distance covered upstream = $\frac{45}{42}$ = 1.07 hours

Therefore, statement I alone is sufficient to answer the question
**Statement II :**
Let the speed of man in still water be 5x and the speed of stream be 2x
Upstream speed = 18 km/hr
So, 5x – 2x = 18
3x = 18; x = 6 km/hr
Downstream speed = 5x + 2x = 7x = 7 × 6 = 42 km/hr
Distance covered upstream = 18 × 2.5 = 45 km

Time taken to row a boat downstream to cover the same distance covered upstream = $\frac{45}{42}$ = 1.07 hours

Therefore, statement II alone is sufficient to answer the question
So, the data either in Statement I or in Statement II alone are sufficient to answer the question.
Hence, option C is correct.

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**3.** **Statement I :**

Let, the amount of water and the amount of milk initially in the container = 5x litres and 13x litres, respectively

Amount of water sold by Vivek = $\frac{5}{18} \times 72 = 20$ litres

Amount of milk sold by Vivek = $\frac{13}{18} \times 72 = 52$ llitres

Since the amount of water and the amount of milk in 44 litres of the mixture which has been mixed later is not given

Therefore, statement I alone is not sufficient to answer the question

**Statement II :**

Let, the amount of water and the amount of milk initially in the container = 5x litres and 13x litres, respectively

Amount of water sold by Vivek = $\frac{5}{18} \times 72 = 20$ litres

Amount of milk sold by Vivek = $\frac{13}{18} \times 72 = 52$ llitres

Amount of water in 44 litres of mixture = $\frac{5}{11} \times 44 = 20$ litres

Amount of milk in 44 litres of mixture = $\frac{6}{11} \times 44 = 24$ litres

But the amount of mixture after mixing 44 litres of another mixture is not given

Therefore, statement II alone is not sufficient to answer the question

**Combining statement I and statement II :**

Let, the amount of water and the amount of milk initially in the container = 5x litres and 13x litres, respectively

And, the amount of water and the amount of milk after mixing 44 litres of mixture = 4y litres and 9y litres, respectively

Amount of water sold by Vivek = $\frac{5}{18} \times 72 = 20$ litres

Amount of milk sold by Vivek = $\frac{13}{18} \times 72 = 52$ llitres

Amount of water in 44 litres of mixture = $\frac{5}{11} \times 44 = 20$ litres

Amount of milk in 44 litres of mixture = $\frac{6}{11} \times 44 = 24$ litres

So, 5x – 20 + 20 = 4y

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

And, $13x - 52 + 24 = 9y$

$13x - 28 = 9 \times \frac{5x}{4}$

$52x - 112 = 45y$

$7x = 112;\ x = 16$

The amount of water mixed by Vivek = $5x$ = 80 litres

So, the data in both statements I and II together are necessary to answer the question

Hence, option D is correct.

**4.** **Statement I :**

Let, amount of water and alcohol mixed initially in the container be $11x$ and $5x$, respectively

So, $\frac{11x - 110 + 25}{5x - 50 + 25} = \frac{2}{1}$

$11x - 85 = 10x - 50$

$x = 35$

Therefore, amount of water initially added in the container = $11 \times 35$ = 385 litres

Therefore, statement I alone is sufficient to answer the question

**Statement II :**

Let, amount of water and alcohol mixed initially in the container be $11x$ and $5x$, respectively

Since, the ratio of water and alcohol in another mixture has not been given

Therefore, statement II alone is not sufficient to answer the question

So, 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

Hence, option A is correct.

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**5.** **Statement I:**

Volume of the tank = $112 \times 22 = 2464\ m^3$

$\pi r^2 h = 2464\ m^3$

Curved surface area of the tank = $\frac{2816}{4} = 704\ m^2$

$2\pi rh = 704\ m^2$

So, $\frac{\pi r^2 h}{2\pi rh} = \frac{2464}{704}$

$\frac{r}{2} = 3.5$

$r = 7$

Since $2\pi rh = 704$

$h = \frac{204 \times 7}{2 \times 22 \times 7} = 16\ m$

Therefore, statement I alone is sufficient to answer the question

**Statement II:**

Curved surface area of the tank = $704\ m^2$

$2\pi rh = 704\ m^2$

Since the rate at which the pipe is emptying the tank is not given

Therefore, we cannot find the height of the tank using the above information

Therefore, statement II alone is not sufficient to answer the question

So, 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

Hence, option A is correct.

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**6.** Let the monthly incomes of Kapil and Vinay be Rs. '4x' and Rs. '5x' respectively

Also, let the monthly savings of Kapil and Vinay be Rs. 'y' and Rs. '2y' respectively

**Statement I :**

$\frac{4x}{y} = \frac{4}{1}$ ; x = y

Monthly expenditure of Kapil = 4x – y
Monthly expenditure of Vinay = 5x – 2y

So, we couldn't find the value of x and y

Therefore, statement I alone is not sufficient to answer the question

**Statement II:**

4x – y = 5x – 2y

So, x = y

So, we couldn't find the value of x and y

Therefore, statement II alone is not sufficient to answer the question

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**Combining statement I and statement II :**

Let the monthly incomes of Kapil and Vinay be Rs. '4x' and Rs. '5x' respectively

Also, let the monthly savings of Kapil and Vinay be Rs. 'y' and Rs. '2y' respectively

$\frac{4x}{y} = \frac{4}{1}$ ; x = y

Monthly expenditure of Kapil = 4x – y
Monthly expenditure of Vinay = 5x – 2y

4x – y = 5x – 2y

So, x = y

So, we still cannot find the monthly expenditure of Vinay

So, the data even in both Statements I and II together are not sufficient to answer the question.

Hence, option E is correct.

**7.** Let the total number of earphones in box A be 'a' and the total number of earphones in box B be 'b'.

**Statement I :**

$\frac{3}{8}a + \frac{2}{3}b = 14 \quad \Rightarrow 9a + 16b = 336$

$\frac{5}{8}a + \frac{1}{3}b = 14 \quad \Rightarrow 15a + 8b = 336$

On solving both the equations, we get a = 16 and b = 12

Number of black earphones in box B = $\frac{1}{3} \times 12 = 4$

Reqd. probability = $\frac{4}{12} \times \frac{3}{11} = \frac{1}{11}$

Therefore, statement I alone is sufficient to answer the question

**Statement II:**

From this statement alone we cannot find the required probability

Therefore, statement II alone is not sufficient to answer the question

So, 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

Hence, option A is correct.

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**8.** **Statement I :**

Let the quantity of water in vessel M and the quantity of oil in vessel N be 'x' litres each

According to the question,

600 – x = 5 × (400 – x)

On solving we get, x = 350 litres

So, the quantity of water in vessel M = 350 litres

And, the quantity of oil in vessel N = 350 litres

Quantity of oil in vessel M = 600 – 350 = 250 litres

Quantity of water in vessel N = 400 – 350 = 50 litres

Required ratio = (0.2 × 250 + 0.25 × 350) : (0.2 × 350 + 0.25 × 50) = 137.5 : 82.5 = 5 : 3

Therefore, statement I alone is sufficient to answer the question

**Statement II :**

From this statement alone we cannot calculate the required ratio

Therefore, statement II alone is not sufficient to answer the question

So, 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.

Hence, option A is correct.

**9.** **Statement I :**

Initial quantity oil in tank Y = $\frac{3}{10} \times 100 = 30$ litres

According to the question,

$$30 + \frac{x}{100} \times \frac{9}{20} \times 500 + \frac{x}{100} \times \frac{9}{20} \times \left[500 \times \left(1 - \frac{x}{100}\right)\right] = 111$$

$30 + 2.25x + 0.0045x \times [5 \times (100 - x)] = 111$

$30 + 2.25x + 0.0045x \times [500 - 5x] = 111$

$30 + 2.25x + 2.25x - 0.0225x^2 = 111$

$0.0225x^2 - 4.5x + 81 = 0$

$x^2 - 200x + 3600 = 0$

$(x - 20)(x - 180) = 0$

So, x = 20%

Therefore, statement I alone is sufficient to answer the question

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**Statement II :**

The difference between the quantities of oil transferred from tank X to tank Y in the 2 transfers was 9 litres.

According to the question,

$$\left[\frac{x}{100} \times \frac{9}{20} \times 500\right] - \frac{x}{100} \times \frac{9}{20} \times \left[500 \times \left(1 - \frac{x}{100}\right)\right] = 9$$

x = 20

Therefore, statement II alone is sufficient to answer the question

So, the data in Statement I alone are sufficient to answer the question, and the data in Statement II alone are sufficient to answer the question

Hence, option C is correct.

**10.** Let, the number of mark sheets of students of class I, II, III, IV and V be a, b, c, d and e respectively

So, b = 7 and e = 2

**Statement I :**

$\frac{a+d}{2} - 2 = c$

$\frac{a+d}{2} - 3 = e$

e = 2

$\frac{a+d}{2} - 3 = 2$

a + d = 10

$\frac{a+d}{2} - 2 = c$

$c = \frac{a+d}{2} - 2 = \frac{10}{2} - 2 = 3$

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Therefore, statement I alone is not sufficient to answer the question

**Statement II:**

b = a + c

So, a = 7 – 3 = 4

And, d = 10 – 4 = 6

Therefore, statement II alone is not sufficient to answer the question

**Combining statement I and statement II:**

Let, the number of mark sheets of students of class I, II, III, IV and V be a, b, c, d and e respectively

So, b = 7 and e = 2

$\frac{a+d}{2} - 2 = c$

$\frac{a+d}{2} - 3 = e$

$e = 2$

$\frac{a+d}{2} - 3 = 2$

$a + d = 10$

$\frac{a+d}{2} - 2 = c$

$c = \frac{a+d}{2} - 2 = \frac{10}{2} - 2 = 3$

$b = a + c$

So, $a = 7 - 3 = 4$

And, $d = 10 - 4 = 6$

Reqd. probability $= \frac{6}{22} \times \frac{5}{21} = \frac{5}{77}$

So, the data in both statements I and II together are necessary to answer the question

Hence, option D is correct.

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