

Boats and Streams Questions and Answers for Competitive Exams Pdf

1. A man can row 6 Km/h in still water. If the river is running at 2 Km/h, it takes 3 hours more in upstream than to go downstream for the same distance. How far is the place?

- a. 24 Km
- b. 28 Km
- c. 3 Km
- d. None of these

Ans: A

The required distance

$$= \frac{(x^2 - y^2)t}{2y} = \frac{(36 - 4)3}{2 \times 2} = 24 \text{ Km.}$$

2. If a boat goes 7 km upstream in 42 minutes and the speed of the stream is 3 kmph, then the speed of the boat in still water is
- a. 4.2 km / hr
 - b. 9 km / hr
 - c. 13 km /hr
 - d. 21 km / hr → C

Ans:

$$\text{Rate upstream} = \left(\frac{7}{42} \times 60 \right) \text{ kmph} = 10 \text{ kmph.}$$

Speed of stream = 3 kmph.

Let speed in still water be x km/hr. Then, speed upstream = $(x - 3)$ km/hr.
 $\therefore x - 3 = 10$ or $x = 13$ km/hr.

3. A man's speed with the current is 15 km/hr and the speed of the current is 2.5 km/hr. The man's speed against the current is
- a. 8.5 km / hr
 - b. 9 km/hr
 - c. 10 km/hr
 - d. 12.5 km/hr → C

Ans:

Man's rate in still water = $(15 - 2.5)$ km / hr = 12.5 km / hr.

Man's rate against the current = $(12.5 - 2.5)$ km / hr = 10 km / hr.

4. Speed of a boat in standing water is 9 kmph and the speed of the stream is 1.5 kmph. A man rows to a place at a distance of 105 km and comes back to the starting point. The total time taken by him is
- a. 16 hours
 - b. 18 hours
 - c. 20 hours
 - d. 24 hours → D

Ans:

Speed upstream = 7.5 kmph; Speed downstream = 10.5 kmph.

$$\therefore \text{Total time taken} = \left(\frac{105}{7.5} + \frac{105}{10.5} \right) \text{ hours} = 24 \text{ hours.}$$

5. The speed of a boat in still water is 15 km / hr and the rate of current is 3 km / hr. The distance travelled downstream in 12 minutes is
- a. 1.2 km
 - b. 1.8 km
 - c. 2.4 km
 - d. 3.6 km → D

Ans:

Speed downstream = $(15 + 3)$ kmph = 18 kmph.

$$\text{Distance travelled} = \left(18 \times \frac{12}{60} \right) \text{ km} = 3.6 \text{ km.}$$

6. A man can row upstream at 7 kmph and downstream at 10 kmph. Find man's rate in still water and the rate of current.
- a. 1.5 km/hr
 - b. 1.8 km/hr
 - c. 2.1 km/hr
 - d. 2.7 km/hr

Ans: A

$$\text{Rate in still water} = \frac{1}{2}(10 + 7) \text{ km/hr} = 8.5 \text{ km/hr.}$$

$$\text{Rate of current} = \frac{1}{2}(10 - 7) \text{ km/hr} = 1.5 \text{ km/hr.}$$

7. There is a road beside a river. Two friends started from a place A, moved to a temple situated at another place B and then returned to A again. One of them moves on a cycle at a speed of 12 km/hr, while the other sails on a boat at a speed of 10 km/hr. If the river flows at the speed of 4 km/hr, which of the two friends will return to place A first?

Clearly, the cyclist moves both ways at a speed of 12 km/hr.

So, average speed of the cyclist = 12 km/hr.

The boat sailor moves downstream @ (10 + 4) i.e., 14 km/hr and upstream (10 - 4) i.e., 6 km/hr.

$$\begin{aligned}\text{So, average speed of the boat sailor} &= \left(\frac{2 \times 14 \times 6}{14 + 6} \right) \text{ km/hr} \\ &= \frac{42}{5} \text{ km/hr} = 8.4 \text{ km/hr.}\end{aligned}$$

Since the average speed of the cyclist is greater, he will return to A first.

8. The speed of a boat when travelling downstream is 32 km/hr, whereas when travelling upstream it is 28 km/hr, what is the speed of the boat in still water and at the speed of the stream?
- 2 km/hr
 - 3 km/hr
 - 4 km/hr
 - 5 km/hr

Ans: A

$$\text{Speed of boat in still water} = \frac{1}{2}(32 + 28) \text{ km/hr} = 30 \text{ km/hr.}$$

$$\text{Speed of stream} = \frac{1}{2}(32 - 28) \text{ km/hr} = 2 \text{ km/hr.}$$

9. A Boat goes 8 km in one hour along the stream and 2 km in one hour against the stream. The speed in km/hr of the stream is

- a. 2
- b. 3
- c. 4
- d. 5

Ans: B

$$\text{Speed of the stream} = \frac{1}{2}(8 - 2) \text{ km/hr} = 3 \text{ km/hr.}$$

10. A boatman rows 1 km in 5 minutes, along the stream and 6 km in 1 hour against the stream. The speed of the stream is

- a. 3 kmph
- b. 6 kmph
- c. 10 kmph
- d. 12 kmph

Ans: A

$$\text{Rate downstream} = \left(\frac{1}{5} \times 60\right) \text{ kmph} = 12 \text{ kmph};$$

$$\text{Rate upstream} = 6 \text{ kmph.}$$

$$\text{Speed of the stream} = \frac{1}{2}(12 - 6) \text{ kmph} = 3 \text{ kmph.}$$