

Boat & Stream

Basic Discussion:

The speed of boat in still water is x km/hr and the speed of stream is y km/hr Then

1. Speed down stream = $x + y$ km/hr
2. Speed up-stream = $x - y$ km/hr
3. Speed of the Stream = $\frac{\text{Downstream} - \text{Upstream}}{2}$
4. Speed of the Boat = $\frac{\text{Downstream} + \text{Upstream}}{2}$

General Problems:

1. A boat can travel with the help of oar (দাঁড়) 3km in 15 minutes along with current and against the current it travels 1 km in 15 minutes. Determine the speed of the boat in still water and the speed of the current. [Class-7 (2.3-Exercise)] **Ans: 8km/hr & 4km/hr**
2. A boat can take 8 hour to go 32 km against the current and take 4 hour for same distance with the current, what is the speed of the boat and current? [IFIC Bank (PO)-2011]+[Modhumoti Bank (MTO)-2016-(Written)] + [Pubali Bank (SO) -2000(Written)] **A: 6 and 2**
3. A man goes upstream at 10 km/hr to a place and back down stream to same point at 6 km/ hr. what is the average speed in the journey? [Sonal Bank (OF-IT)-2016-(Written)]
Ans : 7.5 km/hr
4. A river is flowing at a speed of 5 km/h in a particular direction. A man, who can swim at a speed of 20 km/h in still water, starts swimming along the direction of flow of the river from from points A and reaches another point B which is at a distance of 30 km from the starting point A. On reaching point B, the man turns back and starts swimming against the direction of flow of the river and stops after reaching point A. The total time taken by the man to complete his journey is ? [Sonal Bank-(off: FF-quota)-2019-(Written)]
Ans: 3hr 12min
- 5.

Equation related:

সমীকরণ সাজানোর সময় মনে রাখতে হবে, উভয় পাশের রাশি যেনো অবশ্যই সমান সমান হয়।

এক্ষেত্রে উভয় পাশে দূরত্ব সমান করা যায় অথবা উভয় পাশে সময়কে সমান সমান করা যায়।

6. A man goes down stream with a boat to some destination and returns upstream to his original place in 5 hours. If the speed of the boat in still water and the stream are 10km/hr and 4km/hr respectively, the distance of the destination from the starting place is? [examveda.com] + [competoid.com]
Ans : 21 km

Self Task:

7. A man rowing in favor of the current can go 96 km in 12 hours and he can go the same distance in 48 hours against the current. What is the speed of current per hour? [Sadharaan Bima(AM)-2019 (Written)] + [myexaminer.net] **Ans:3 km/hr**
8. The speed of a boat in still water is 10 km per hr. If it can travel 24 km downstream and 14 km in the upstream in equal time, indicate the speed of the flow of stream. [RAKUB (Off)- 2016(Written)] **Ans: $\frac{50}{19}$ km/h**
9. In a stream running at 2 km/hr, a motor boat goes 10 km upstream and back again starting point in 55 minutes. Find the speed of the motor boat in still water. [UCBL Bank Ltd. (Officer) – 2010 – (Written)] **Ans:22km/hr**

 Self Task:

10. A boat goes 8 km upstream and then returns. Total time taken is 4 hrs 16 minutes. If the velocity of current is 1 km/hr, find the actual velocity of the boat. [doubtnut.com] **Ans: 4km/hr**
11. The speed of the boat in still water is 24 kmph and the speed of the stream is 4 km/hr. The time taken by the boat to travel from A to B downstream is 36 minutes less than the time taken by the same boat to travel from B to C upstream, If the distance between A and B is 4 km more than the distance between B and C, what is the distance between A and B? [Sonali Bank- (SO-ff)-2019 (Written)] **Ans: 56 km**
12. A man rows to a place 40 km distant and come back in 9 hours. He finds that he can row 5 km with the stream in the same time as 4 km against the stream. The rate of the stream is: [BSC Combined SO (8 Banks & FIs)-2018 (Written)] **Ans: 1 km/hr**

 Self Task:

13. A boatman takes 4 hours to row 15km and return to the starting point. He takes as much as time to go 5km downstream as to go 3 km upstream. Find the speed of the boat and the speed of the stream. [Class 9-10 (3.5)] **Ans: 8km/hr and 2km/hr**

 Self Task:

14. A man rows to a place 35 km in distance and back in 10 hours 30 minutes. He found that he can row 5 km with the stream in the same time as he can row 4 km against the stream. Find the rate of flow of the stream. **Ans: 0.75km/hr**
15. The speed of Boat in still water is 40 km/hr and speed of the stream is 20 km/hr. The distance between Point A and Point B is 480 km. The boat started traveling downstream from A to B, in the midway, it is powered by an Engine due to which speed of the Boat increased. Now Boat reached Point B and started back to point A with help of the same engine. It took 19 hours for the entire journey. Then with the help of the engine, the speed of the boat increased by how many km/hr? [Affairscloud.com] **Ans: 20**

Double Equation related:

16. A boat running upstream takes 8 hours 48 Minutes to cover a certain distance, while it takes 4 hours to the same distance running downstream. What mile ratio between the speed of the boat and speed of the water current respectively? [*HouseBuilding(SO)-17(Written)*]+ [*PKB-EO-(Cash)-2019-(Written)*]
Ans: 8:3
17. A man went downstream for 28 km in a motor boat and immediately returned. It took the man twice as long to make the return trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow. [*Combined-2 bank-(Off)-2018-(Written)*]+ [*Combined 4 Bank-(Officer)-2019(Written)*]
Ans: 9km/hr and 3km/hr
18. A ship has faulty engine sailed only 7 hours period 2 day that covers 59 km. if first day rate is 5 km less than second day but first day sailed 3 hours more than of second day. what's is the average speed of second day? [*DBBL-(PO)-2017(Written)*]
Ans: 12kmph
19. A boat takes 3 hours to travel to a certain distance with the stream and return to the original place in 5 hours. How long will it take to travel the same distance in stationary water? [*Sonali Bank (SO-IT)-2016*]
Ans: 3 hrs 45 min
20. On a river , Q is the mid - point between two points P and R on the same bank of the river. A boat can go from P to Q and back in 12 hours, and from P to R in 16 hours 40 minutes. How long would it take to go from R to P? [*Rupali Bank- (SO)-2019 (Written)*]
Ans: 7 hr 20 min
21. A man can row 30 km upstream and 44 km downstream in 10 hrs. It is also known that he can row 40 km upstream and 55 km downstream in 13 hrs. Find the speed of the man in still water. [*Combined 4 banks (officer – cash)-2018 (Written)*]+[*doubtnut.com*]
A: 8km/hr

Self Task:

22. A boat goes 64 km upstream and 72 km downstream in 14 hrs. It goes 80 km upstream and 96 km downstream in 18 hrs. Find the speed of the boat in still water and the speed of the stream. [*toppr.com*]
[Hints: $\frac{72}{x} + \frac{64}{y} = 14$ & $\frac{96}{x} + \frac{80}{y} = 18$, then $x = 12$ and $y = 8$ So, Boat = 10 & Stream = 2]
23. Two boats on opposite banks of a river start moving towards each other. They first pass each other 1400 meters from one bank. They each continue to the opposite bank, immediately turn around and start back to the other bank. When they pass each other a second time, they are 600 meters from the other bank. We assume that each boat travels at a constant speed all along the journey. What's the width of the river? [*BSC-Combined exam-(SO-3Banks)-2018-(Written)*]
Ans: 3600 m.

☐ Self Task:

24. Two boats on the opposite shores of a river start moving towards each other. When they pass each other they are 750 yards from one shoreline. They each continue to the opposite shore, immediately turn around and start back. When they meet again they are 250 yards from the other shoreline. Each boat maintains a constant speed throughout . How wide is the river (in yards)?
 [toppr.com]+ [gmatclub.com] Ans:2000 yards

📁 Others:

25. It takes 120 MT water to sink a ship. Through a hole in the hull of the ship, water is entering the ship at a rate of 2 MT per minute. At the same time, water is being pumped out at the rate 1.5 MT per minute using one pump. After 1 hour and 20 minutes another pump of same capacity was started. How much more time will it take to pump all the water out of the ship? [Bangladesh Gas Field (Asst. Manager general/security)-2017-(written)]
Ans: 40 minutes

