

Boats and Streams Questions and Answers Pdf

1. A boat takes 8 hours to cover a distance while travelling upstream, whereas while travelling downstream it takes 6 hours. If the speed of the current is 4 kmph, what is the speed of the boat in still water?
- 12 kmph
 - 16 kmph
 - 28 kmph
 - Cannot be determined

Ans: C

Let the speed of the boat in still water be x kmph.

Then, Speed downstream = $(x + 4)$ kmph,

Speed upstream = $(x - 4)$ kmph.

$$\therefore (x + 4) \times 6 = (x - 4) \times 8$$

$$\Rightarrow 6x + 24 = 8x - 32 \Rightarrow 2x = 56 \Rightarrow x = 28 \text{ kmph.}$$

1. A man can swim in still water at a rate of 4 km/hr. The width of the river is 1 km. How long will he take to cross the river straight, if the speed of the current is 3 km/hr?

- 10 min
- 15 min
- 18 min
- 20 min

Ans: B

Required time = Time taken to cover 1 km @ 4 kmph

$$= \left(\frac{1}{4} \times 60 \right) \text{ min} = 15 \text{ min.}$$

2. Twice the speed downstream is equal to the thrice the speed upstream, the ratio of speed in still water to the speed of the current is
- 1:5

- b. 5:1
- c. 1:3
- d. 2:3 → b

Ans:

(b) Let, speed in still water = x Km/h.

Speed of current = y Km/h.

Speed downstream = $(x + y)$ Km/h.

Speed upstream = $(x - y)$ Km/h.

$$\therefore 2(x + y) = 3(x - y)$$

$$\therefore x = 5y$$

$$\text{or, } \frac{x}{y} = \frac{5}{1} \text{ or } 5:1.$$

4. A boat can travel 36 km upstream in 5 hours. If the speed of the stream is 2.4 kmph, how much time will the boat take to cover a distance of 78 km downstream?

- a. 5
- b. 6.5
- c. 5.5
- d. 8

Ans: B

Distance covered by a boat in 5 hours = 36 km

$$\text{Rate upstream of boat} = \frac{36}{5} = 7.2 \text{ kmph}$$

Speed of stream = 2.4 kmph

$$\begin{aligned} \therefore \text{Speed of boat in still water} \\ &= (7.2 + 2.4) \text{ kmph} \\ &= 9.6 \text{ kmph} \end{aligned}$$

$$\begin{aligned} \therefore \text{Rate downstream of boat} \\ &= (9.6 + 2.4) \text{ kmph} \\ &= 12 \text{ kmph} \end{aligned}$$

$$\therefore \text{Time taken in covering 78 km distance} = \frac{78}{12} = 6.5 \text{ hours.}$$

5. The speed of a boat in still water is 8 Km/h. If its speed downstream be 15 Km/h, then speed of the stream is
- a. 7.5 Km/h
 - b. 7 Km/h

- c. 9 Km/h
- d. None of these \rightarrow b

Ans:

Speed of the boat downstream = 15 Km/h.

Speed of the boat in still water = 8 Km/h.

Let the speed of the stream = y Km/h.

We have, $15 = 8 + y$

Therefore, $y = 15 - 8 = 7$ Km/h.