Aptitude :: Boats and Streams

Exercise : Boats and Streams - General Questions

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1. A boat can travel with a speed of 13 km/hr in still water. If the speed of the stream is 4 km/hr, find the time taken by the boat to go 68 km downstream.

   (A) 2 hours

   (B) 3 hours

   (C) 4 hours

   (D) 5 hours

Answer: Option (C)

Explanation:

Speed downstream = (13 + 4) km/hr = 17 km/hr.

Time taken to travel 68 km downstream = $\left(\frac{68}{17}\right)$ hrs = 4 hrs.

2. 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

Answer: Option (C)

Explanation:

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.

3. A boat running upstream takes 8 hours 48 minutes to cover a certain distance, while it takes 4 hours to cover the same distance running downstream. What is the ratio between the speed of the boat and speed of the water current respectively?

   (A) 2 : 1

   (B) 3 : 2

   (C) 8 : 3

   (D) Cannot be determined

   (E) None of these

Answer: Option (C)

Explanation:

Let the man's rate upstream be x kmph and that downstream be y kmph.

Then, distance covered upstream in 8 hrs 48 min = Distance covered downstream in 4 hrs.

$$\Rightarrow \left(x \times 8\frac{4}{5} \right) = (y \times 4)$$

$$\Rightarrow \frac{44}{5}x = 4y$$

$$\Rightarrow y = \frac{11}{5}x.$$

$$\therefore \text{ Required ratio } = \left(\frac{y + x}{2} \right) : \left(\frac{y - x}{2} \right)$$

$$= \left(\frac{16x}{5} \times \frac{1}{2} \right) : \left(\frac{6x}{5} \times \frac{1}{2} \right)$$

$$= \frac{8}{5} : \frac{3}{5}$$

= 8 : 3.

4. A motorboat, whose speed in 15 km/hr in still water goes 30 km downstream and comes back in a total of 4 hours 30 minutes. The speed of the stream (in km/hr) is:

(A) 4

(B) 5

(C) 6

(D) 10

Answer: Option (B)

Explanation:

Let the speed of the stream be x km/hr. Then,

Speed downstream = $(15 + x)$ km/hr,

Speed upstream = $(15 - x)$ km/hr.

$\therefore \frac{30}{(15 + x)} + \frac{30}{(15 - x)} = 4\frac{1}{2}$

$\Rightarrow \frac{900}{225 - x^2} = \frac{9}{2}$

$\Rightarrow 9x^2 = 225$

$\Rightarrow x^2 = 25$

$\Rightarrow x = 5$ km/hr.

Video Explanation: **https://youtu.be/lMFnNB3YQOo**

5. In one hour, a boat goes 11 km/hr along the stream and 5 km/hr against the stream. The speed of the boat in still water (in km/hr) is:

(A) 3 km/hr

(B) 5 km/hr

(C) 8 km/hr

(D) 9 km/hr

Answer: Option (C)

Explanation:

Speed in still water = $\frac{1}{2}(11 + 5)$ kmph = 8 kmph.

Video Explanation: **https://youtu.be/KQX_mA3tcVA**