BOAT AND STREAM

- **Upstream = (u−v) km/hr**, where "u" is the speed of the boat in still water and "v" is the speed of the stream

- **Downstream = (u+v) Km/hr**, where "u" is the speed of the boat in still water and "v" is the speed of the stream

- **Speed of Boat in Still Water = ½ (Downstream Speed + Upstream Speed)**

- **Speed of Stream = ½ (Downstream Speed − Upstream Speed)**

- **Average Speed of Boat = {(Upstream Speed × Downstream Speed) / Boat's Speed in Still Water}**

- Let Downstream Speed be 'x' and Upstream Speed be 'y'
  So,
  Speed of Boat in Still Water =1/2(x+y)
  Speed of Stream=1/2(x-y)

  Now, **Speed of Boat in Still Water/ Speed of Stream=(x+y)/(x-y)**

  Note-Downstream speed will be always greater than Upstream speed

Q 1. A person can swim in water with a speed of 13 km/hr in still water. If the speed of the stream is 4 km/hr, what will be the time taken by the person to go 68 km downstream?

1. 2.5 hours
2. 3 hours
3. 4 hours
4. 3.5 hours
5. 4.5 hours

Answer: (3) 4 hours

Solution:

BOAT AND STREAM

Downstream Speed = (13+4) km/hr = 17 km/hr

To travel 68 km downstream.

Time taken = 68/17 = 4 hours

Q 2. In one hour, a boat goes 13 km/hr in the direction of the stream and 7 km/hr against the direction of the stream. What will be the speed of the boat in still water?

1. 8 km/hr
2. 10 km/hr
3. 14 km/hr
4. 6 km/hr
5. Cannot Be Determined

Answer: (2) 10 km/hr

Solution:

According to the formula,

Speed of a boat in still water = ½ (DownstreamSpeed + UpstreamSpeed)

Speed of boat in still water = ½ (13+7) = ½ × 20 = 10 km/hr

Q 3. A woman can row upstream at 16 km/hr and downstream at 26 km/hr. What is the speed of the stream?

1. 5 km/hr
2. 2 km/hr
3. 4.5 km/hr
4. 21 km/hr
5. 12 km/hr

Answer: (1) 5km/hr

Solution:

According to the formula,

Speed of the stream = ½ (Downstream Speed − Upstream Speed)

Speed of the stream = ½ (26-16) = ½ × 10 = 5 km/hr