Boats and Streams

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:

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 (Downstream Speed + Upstream Speed)

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

Q 4. A speedboat, whose speed in 15 km/hr in still water goes 30 km downstream and comes back in a total of 4 hours 30 minutes. What is the speed of the stream in km/hr?

1. 2.5 km/hr
2. 3.5 km/hr
3. 4 km/hr
4. 5 km/hr
5. 3.25 km/hr

Answer: (4) 5 km/hr

Solution:

Let the speed of the stream be x km/hr
Upstream Speed = 15 + x
Downstream Speed = 15 – x
So, {30 / (15+x)} + {30 / (15-x)} = 4 ½ (4 hours 30 minutes)
⇒ {900 / (225-x2)} = 9/2
⇒ $9x^2 = 225$
⇒$x^2 = 25$
⇒x = 5

Q 5. A boat is moving 2 km against the current of the stream in 1 hour and moves 1 km in the direction of the current in 10 minutes. How long will it take the boat to go 5 km in stationary water?

1. 1 hr 20 minutes
2. 1 hr 30 minutes
3. 1 hr 15 minutes
4. 30 minutes
5. 45 minutes

Answer: (3) 1 hr 15 minutes

Solution:

Downstream = (1/10 × 60) = 6 km/hr
Upstream = 2 km/hr
Speed in still water = ½ (6+2) = 4 km/hr
So, the time is taken by the boat to go 5km in stationary water = 5/4 hrs = 1 ¼ hrs = 1 hr 15 minutes