Boats and Streams: 8 Important Shortcuts & Tricks

Explained with Examples

Stream: Moving water of the river is called stream.

Still Water: Ifthe water is not moving then it is called still water.

Upstream: If a boat or a swimmer moves in the opposite direction of the stream then It is called upstream.

Downstream: If a boat or a swimmer moves in the same direction of the stream then itis called downstream.

Points to remember

|. When speed of boat or a swimmer is given then it normally means speed in still water.
li. If speed of boat or swimmer is x km/h and the speed of stream is y km/h then,
li, Speed of boat or swimmer in still water is given by = 1/2(Downstream + Upstream)
Speed of boat or swimmer upstream = (x - y) km/h
Speed of boat or swimmer downstream=(x + y) km/h.
Speed of stream is given by = 1/2(Downstream - Upstream)

Some Shortcut Methods

Trick-1:

A man can row certain distance downstream in t1 hours and returns the same distance upstream in t2 hours. If the speed c

=y*{t2+t1)/(t2-t1)

A man can row certain distance downstream in 2 hours and returns the same distance upstream in 4 hours. If the speed of

Sol:

speed of man in still water = 5*(4+2)/(4-2) =15 km/hr

Trick-2:

A man can row certain distance downstream in t1 hours and returns the same distance upstream in t2 hours. if the speed c wecvuper:

=y*(t2-t1) / (t2+t1)

Ex:Ramesh can row a certain distance downstream in 6 hours and returns the same distance in 9 hours. If the speed of Ram

Sol : Speed ofthe stream = 12(9-6) /(9+6)

Trick-3:

A man can row in still water at x km/h. In a stream flowing at y km/h takes him 't' hours to row to a place and come bac

= [t*(x square of 2 - y square of 2}]/(2 * x)

Ex: A man can row in still water at 4 km/h. In a stream flowing at 2 km/h, if it takes him 'S' hours to row to a place a

sol

=[5*(16-4)]/(2*4) =7.5 km

Trick-4:

A man can row in still water at x km/h. In a stream flowing at y km/h, if it takes t hours more in upstream than to go c

= [t*(x square of 2 - y square of 2)]/(2 * y)

Ex: A man can row in still water at 4 km/h. In a stream flowing at 2 km/h, if it takes 3 hours more in upstream than to

Sol: =[3*(36-4))/(2*2} =9 km

Trick-5:

A man can row in still water at x km/h. In a stream flowing at y km/h, if he rows the same distance up and down the stre

= (x SQUARE OF 2 - y SQUARE OF 2)/x
= (Downstream * Upstream)/man speed in still water.

A man can row in still water at 4km/h. In a stream flowing at 2 km/h, if he rows the same distance up and down the strea

=[(16-4)]/4 =3 km/hr

Trick-6:

A man can row a distance 'D' upstream in t1 hrs. If he rows the same distance down the stream in t2 hrs.then speed is gi

Stream speed = [D*(t1-t2)]/(2*t1*t2)

Ex: A man can row a distance 30 km upstream in 5 hrs. if he rows the same distance down the stream in 3 hrs. then speed

=30*(5-3))/(2*5*3) =2 km/hr

Trick-7:

A man can row a distance 'D' upstream in t1 hrs. If he rows the same distance down the stream in t2 hrs. then speed is g

Man speed = [D*(t1+t2)]/(2*t1*t2)

Ex: A man can row a distance 30 km upstream in 5 hrs. if he rows the same
distance down the stream in 3 hrs. then speed
of man ?

=[30*(5+3)]/(2*5*3}= 8 km/hr

Trick-1:

A man can row certain distance downstream in t1 hours and returns the same distance upstream in t2 hours. If the speed c

= speed of stream is y km/h * (same distance upstream in t2 hours + certain distance downstream in t1 hours)/(same dista
y=speed of stream t1=downstream t2=upstream

=y*{t2+t1)/(t2-t1)

Trick-2:

A man can row certain distance downstream in t1 hours and returns the same distance upstream in t2 hours. if the speed c

= speed of stream is y km/h * (same distance upstream in t2 hours - certain distance downstream in t1 hours)/(same dista
y=speed of stream t1=downstream t2=upstream

=y*(t2-t1) / (t2+t1)

Trick-3:

A man can row in still water at x km/h. In a stream flowing at y km/h takes him 't' hours to row to a place and come bac

=['t' hours to row to a place and come back(row in still water at x km/h square of 2 - stream flowing at y km/h square c
t= hrs to place and come back x=still water y=stream flowing

= [t*(x square of 2 - y square of 2)]/(2 * x)

Trick-4:

A man can row in still water at x km/h. In a stream flowing at y km/h, if it takes t hours more in upstream than to go c

=['t' hours to row to a place and come back(row in still water at x km/h square of 2 - stream flowing at y km/h square c
t=hrs to place and come back x=still water y= stream flowing

= [t*(x square of 2 - y square of 2)]/(2 * y)

Trick-5:

A man can row in still water at x km/h. In a stream flowing at y km/h, if he rows the same distance up and down the stre

= row in still water at x km/h square of 2 - stream flowing at y km/h square of 2)/ row in still water at x km/h
x=still water y=stream flowing

= (x SQUARE OF 2 - y SQUARE OF 2)/x
= (Downstream * Upstream)/man speed in still water.

Trick-6:

A man can row a distance 'D' upstream in t1 hrs. If he rows the same distance down the stream in t2 hrs.then speed is gi

=[distance 'D'*(upstream in t1 hrs - down the stream in t2 hrs)]/(2*upstream in t1 hrs*down the stream in t2 hrs)
D=distance t1=upstream t2=downstream

Stream speed = [D*(t1-t2)]/(2*t1*t2)

Trick-7:

A man can row a distance 'D' upstream in t1 hrs. If he rows the same distance down the stream in t2 hrs. then speed is g

=[distance 'D'*(upstream in t1 hrs + down the stream in t2 hrs)]/(2*upstream in t1 hrs*down the stream in t2 hrs)
D=distance t1=upstream t2=downstream

Man speed = [D*(t1+t2)]/(2*t1*t2)

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Still Water: Ifthe water is not moving then it is called still water.

Upstream: If a boat or a swimmer moves in the opposite direction of the
stream then It is called upstream.

Downstream: If a boat or a swimmer moves in the same direction of the
stream then itis called downstream.
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y=speed of stream t1=downstream t2=upstream

=y*{t2+t1)/(t2-t1)

moving water into opposite direction + same direction
  ---
  opposite direction - same direction
---

y=speed of stream t1=downstream t2=upstream

=y*(t2-t1) / (t2+t1)

moving water into opposite direction + same direction
---
opposite direction + same direction

---

t= hrs to place and come back x=still water y=stream flowing

= [t*(x square of 2 - y square of 2)]/(2 * x)
hrs to place and come back into (not moving square of 2 - moving water square of 2)

2*not moving
---

t=hrs to place and come back x=still water y= stream flowing

= [t*(x square of 2 - y square of 2)]/(2 * y)

hrs to place and come back into (not moving square of 2 - moving water square of 2)

2*moving water
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x=still water y=stream flowing

= (x SQUARE OF 2 - y SQUARE OF 2)/x
= (Downstream * Upstream)/man speed in still water.

not moving square of 2 - moving water square of 2
---
not moving

D=distance t1=upstream t2=downstream

Stream speed = [D*(t1-t2)]/(2*t1*t2)

[distance*(opposite direction-same direction)

2* opposite direction*same direction

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moving water=stream not moving water=still water opposite direction=upstream same direction=downstrea

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moving water into opposite direction + same direction
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opposite direction - same direction

moving water into opposite direction + same direction
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opposite direction + same direction

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not moving

[distance*(opposite direction-same direction)

2* opposite direction*same direction

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moving water=stream not moving water=still water opposite direction=upstream same direction=downstrea
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