MISSION SELECTION

IBPS पीओ / क्लर्क SERIES

IBPS

MATHS

IBPS PO Mains Based Boat & Stream – DI + Word Problems

पढ़ना नहीं, सीखना है

8:30 AM

Mahendra's

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A boat which sails at 10 km/h in still water starts chasing, from 10 km behind, another one which sails at 4 km/h in the upstream direction. After how long will it catch up if the stream is flowing at 2 km/h:

एक नाव जो शांत जल में 10 किमी/घंटा की दर से बहती है, 10 किमी पहले शुरू होती है, एक अन्य नाव को, जो धारा के विरुद्ध दिशा में 4 किमी/घंटा की की गति से पीछा करती है। यदि धारा 2 किमी/घंटा से बह रही है तो कब तक इसे पकड़ेगी:

1. 4 h 2. 2.5 h 3. 2 h 4. 2.2 h 5. 3.5 h

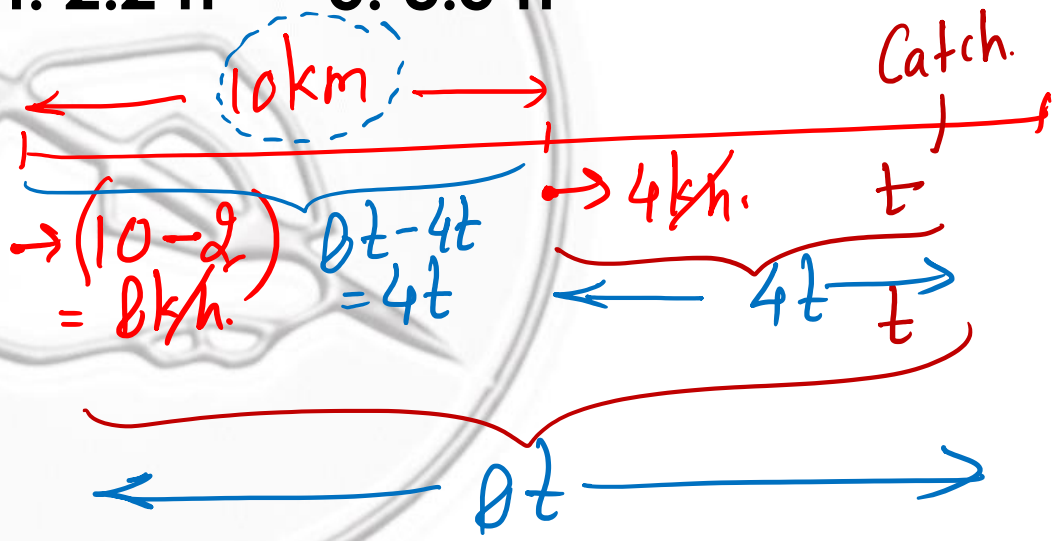
Ans

B_2 ; upstream = 4

B_1 = still

UP = 10 − 2 = 8

Upstream



∴ 4t = 10

t = 2.5 hrs

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A motor boat went downstream for 120 km and immediately returned. It took the boot 15 hours to complete the round trip. If the speed of the river were twice as high, the trip downstream and back would take 24 hours.

एक मोटर नाव धारा की दिशा में 120 किमी गई और तुरंत लौट गई। परिक्रमायुक्त यात्रा को पूरा करने में नाव को 15 घंटे लगे। यदि नदी की गति दो गुना अधिक होती, तो धारा की दिशा में और विरुद्ध दिशा में यात्रा में 24 घंटे लगते है।

1. What is the speed of the boat in still water?

शांत पानी में नाव की गति कितनी है?

1. 20 km/h 2. 15 km/h 3. 18 km/h 4. 16 km/h 5 None of these

Still water = x k/h.

Stream = y k/h.

$\frac{2x}{x^2-y^2} = \frac{1}{8}$ --- (I)

$\frac{2x}{x^2-4y^2} = \frac{1}{5}$ --- (II)

(I)/(II)

$\frac{x^2-4y^2}{x^2-y^2} = \frac{5}{8}$

$\Rightarrow 8x^2-32y^2 = 5x^2-5y^2$

$\Rightarrow 3x^2 = 27y^2 \Rightarrow x^2 = 9y^2$

$\Rightarrow x = 3y$

$\frac{120}{x+y} + \frac{120}{x-y} = 15$

$\Rightarrow \frac{1}{x+y} + \frac{1}{x-y} = \frac{1}{8}$

$\frac{x-y+x+y}{x^2-y^2} = \frac{1}{8}$

$\Rightarrow x = 3\times6 = 18$ k/h Ans

$\frac{2\times3y}{9y^2-y^2} = \frac{1}{8}$

$\Rightarrow 8y^2 = 48y$

$y = 6$ Ans

$\frac{120}{x+2y} + \frac{120}{x-2y} = 24$

$\frac{1}{x+2y} + \frac{1}{x-2y} = \frac{1}{5}$

$\frac{x-2y+x+2y}{x^2-4y^2} = \frac{1}{5}$

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2. What is the speed of the stream?

धारा की गति क्या है?

1. 3.5 km/h 2. 6 km/h 3. 4 km/h 4. 8 km/h 5. 5 km/h

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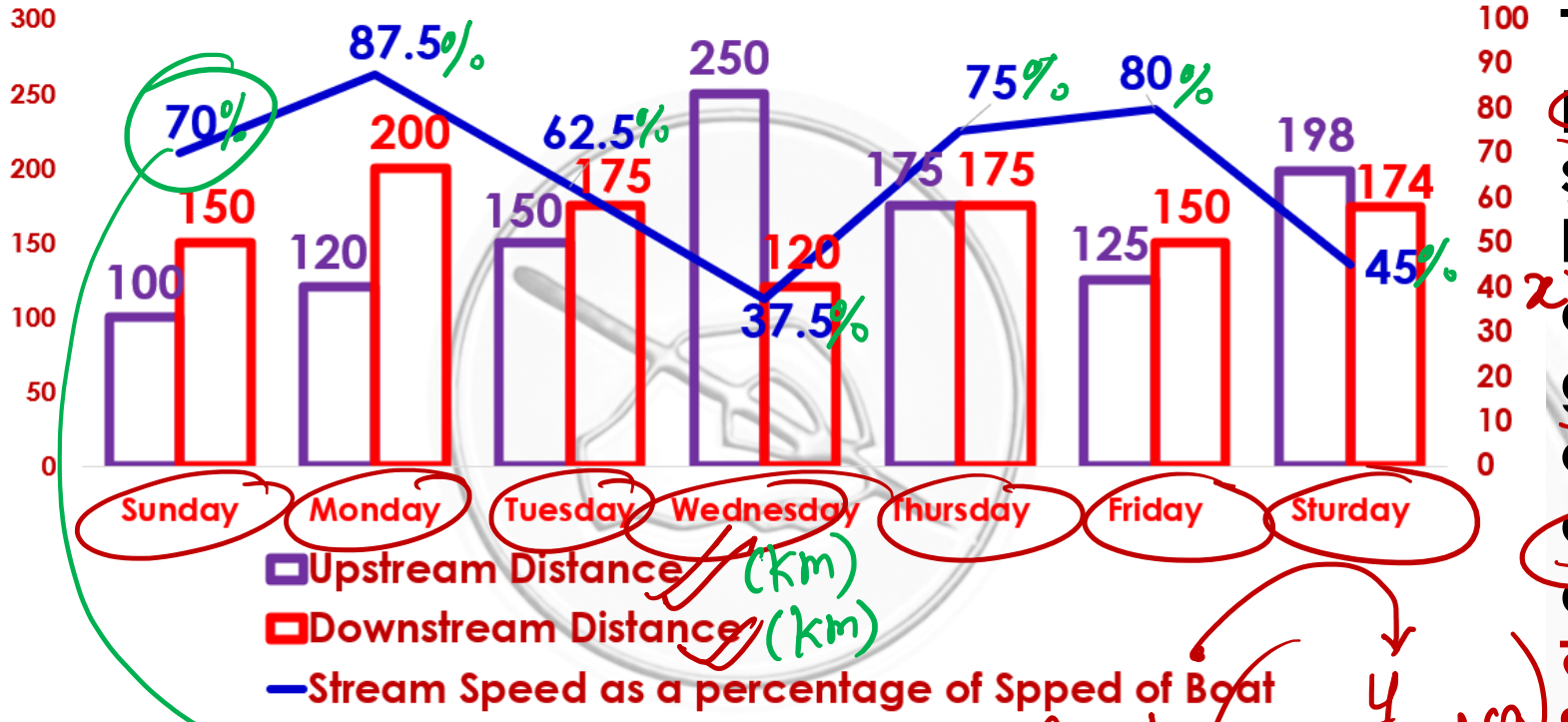

The line graph shows the percentage of the speed of the stream over the speed of the boat in still of a boat in different days of a week. The column graph shows the distance covered in upstream and downstream direction on given days

लाइन ग्राफ सप्ताह के विभिन्न दिनों में धारा की गति का प्रतिशत शांत जल में नाव की गति पर दर्शाता है। दंड ग्राफ दी गई दिनों में उर्धप्रवाह और अनुप्रवाह दिशा में तय की गई दूरी को दर्शाता है

Line graph $\left(\% = \frac{y}{x} \times 100\right)$

$70\% = \frac{7 \leftarrow y}{10 \leftarrow x}$

$x : y = 10 : 7$

$u_s = x - y = 10 - 7 = 3$

$d_s = x + y = 10 + 7 = 17$

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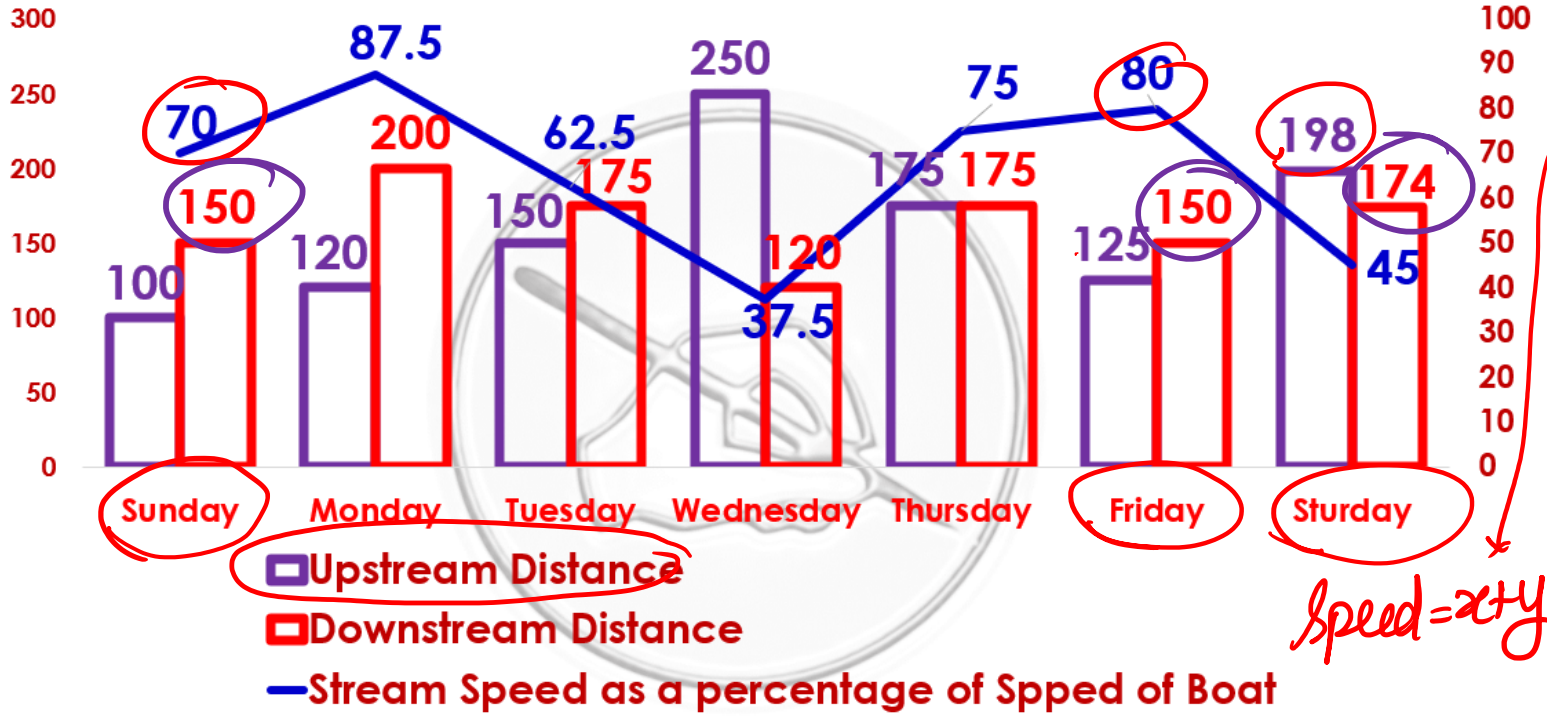

Find the ratio time taken to go in downstream direction by the boat on Sunday, Friday and Saturday respectively.

क्रमशः रविवार, शुक्रवार और शनिवार को नाव से अनुप्रवाह दिशा में जाने के लिए लिया गए समय का अनुपात ज्ञात कीजिए।

Speed = x+y

1. 522:986:375
2. 52:98:37
3. Data Inadequate

2. 3:4:5
3. 2:3:4

Ans

70% = 7/10

80% = 4/5

45% = 9/20

$$\frac{150}{10x+7y} : \frac{150}{5y+4y} : \frac{174}{20z+9z}$$

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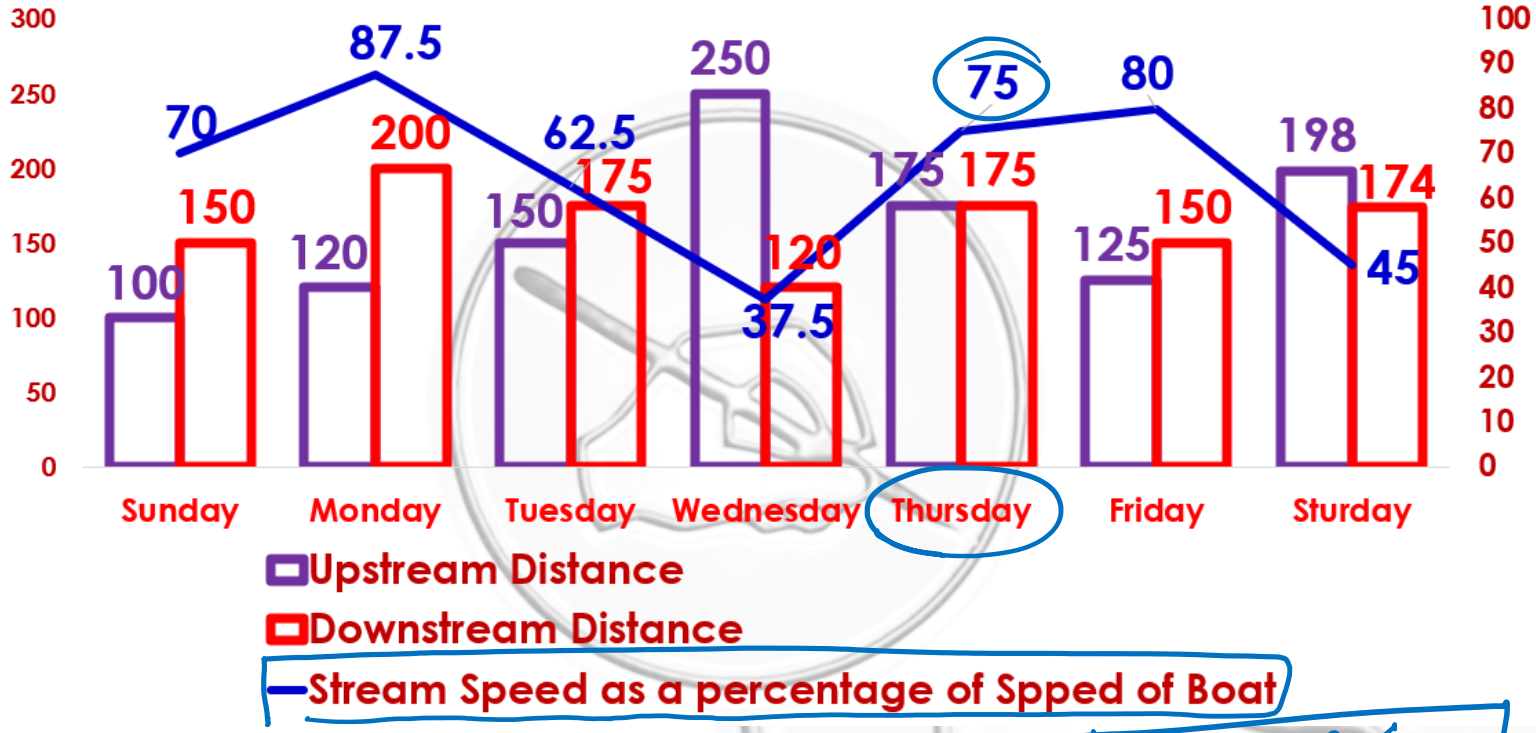

The upstream speed of boat on Thursday is what percentage less than the its downstream speed on the same day?

गुरुवार को नाव की उर्धप्रवाह गति और उसी दिन अनुप्रवाह गति से कितना प्रतिशत कम है?

1. 80% 2. $85\frac{5}{7}\%$ 3. 70%

4. 75% 5. Data Inadequate

$75\% = \frac{3}{4}$

$\% \text{ less} = \frac{6}{7} \times 100$

$= \frac{600}{7} = 85\frac{5}{7}\%$

Thurs Upstream : Thurs Down

$(4x - 3x) : (4x + 3x)$

$x : 7x$

$= 1 : 7$

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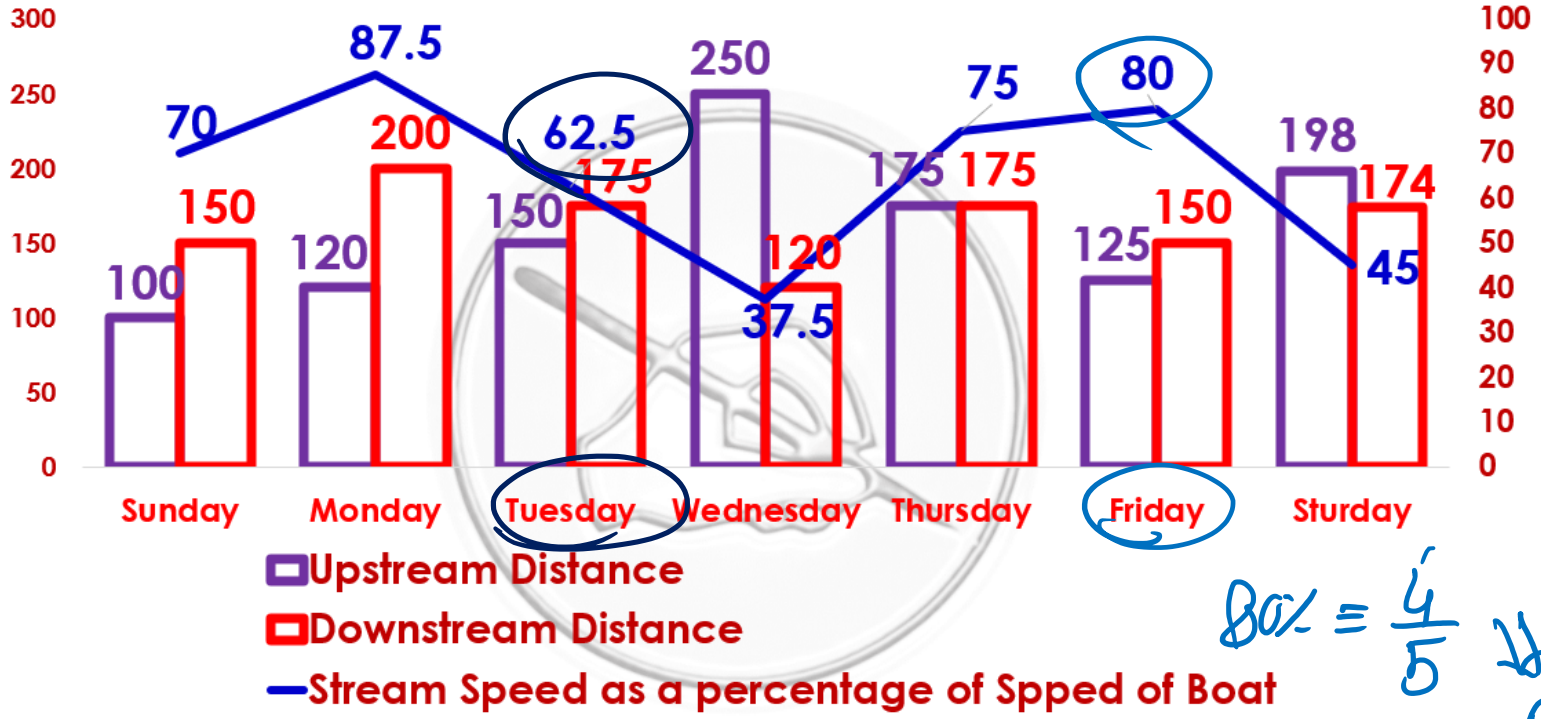

The upstream speed of boat on Friday is what percentage less than the its downstream speed on the Tuesday?

शुक्रवार को नाव की उर्धप्रवाह गति और मंगलवार को अनुप्रवाह गति से कितना प्रतिशत कम है?

1. 17.5% 2. $53\frac{11}{13}\%$ 3. 90%

4. 75% 5. Data Inadequate

$80\% = \frac{4}{5}$

$62.5\% = \frac{5}{8}$

Fri Up Tues Down

$(5t_1 - 4t_1) : 8t_2 + 5t_2$

$= t_1 : 13t_2$ (t_2 ; t_1 can't be calculated)

$\therefore$

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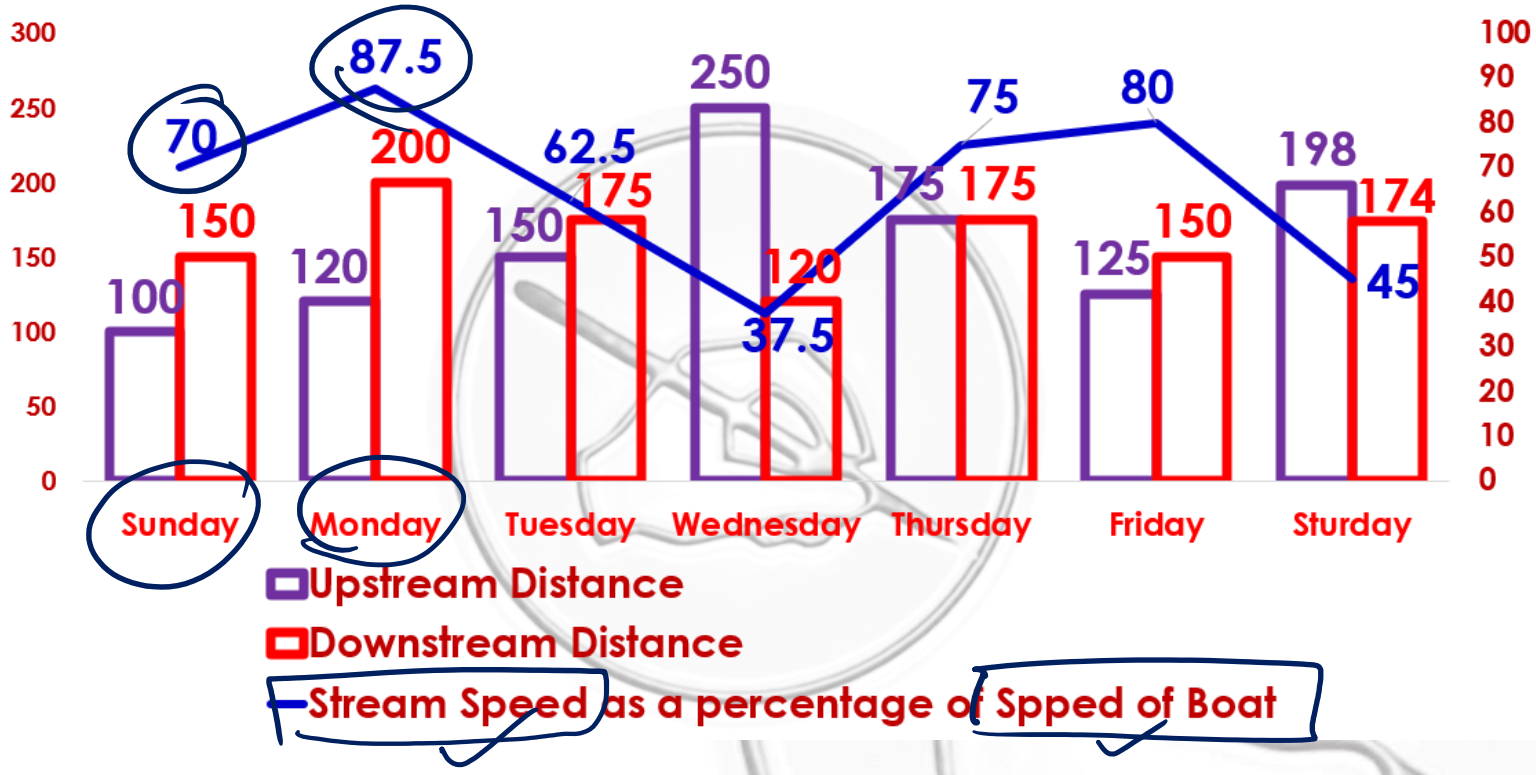

Find the ratio of the upstream speed of boat on Sunday to that on Monday if, the stream flows at the same rate on both the days.

रविवार और सोमवार को नाव की उर्धप्रवाह गति का अनुपात ज्ञात करें, यदि धारा दोनों दिन एक ही दर से बहती है।

1. 3:1 2. 5:3 3. 10:7%
4. 1:1% 5. Data Inadequate

Already Adjusted

Still Stream

$70\% = \frac{7}{10}$ Sunday 10 : 7*

$87.5\% = \frac{7}{8}$ Monday 8 : 7*

$\therefore$ UP_{Sunday} UP_{Mon}

$(10-7) : (8-7)$

$= \boxed{3 : 1}$ Ans

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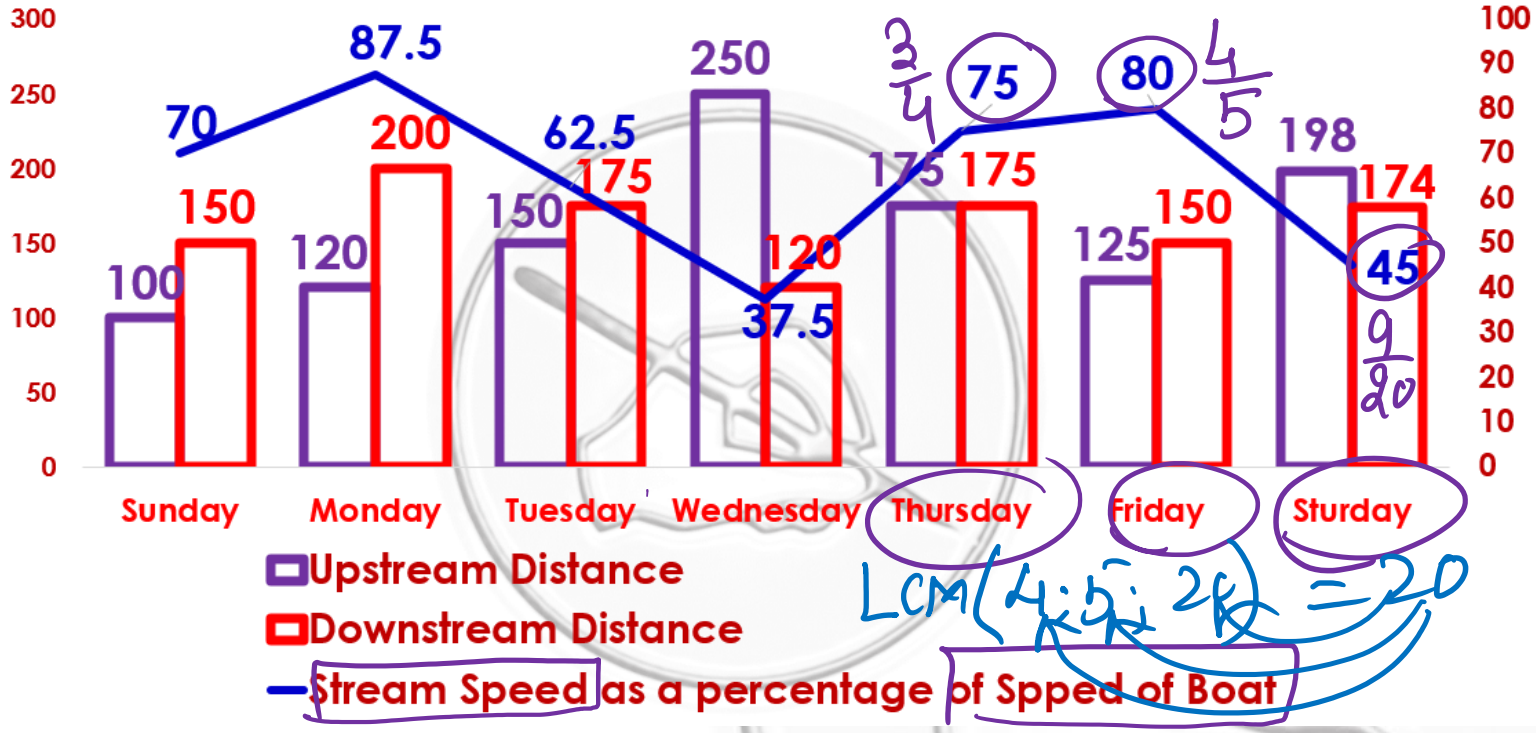

Find the ratio of the downstream of the boat on Thursday, Friday and Saturday if the boat rows at equal speed (in still water) on the given days.

गुरुवार, शुक्रवार और शनिवार को नाव के अनुप्रवाह गति का अनुपात ज्ञात करें यदि दिए गए दिनों में नाव समान गति से (शांत पानी में) बहती है।

1. 5:6:9 2. 3:3:2 3. 35:36:29
4. 12:13:15 5. Data Inadequate

LCM(4, 5, 20) = 20

	Still	Stream
Thurs	*4 :	3]x5 = 20 : 15
Fri	*5 :	4]x4 = 20 : 16
Sat.	*20 :	9]x1 = 20 : 9

35 : 36 : 29

Ans

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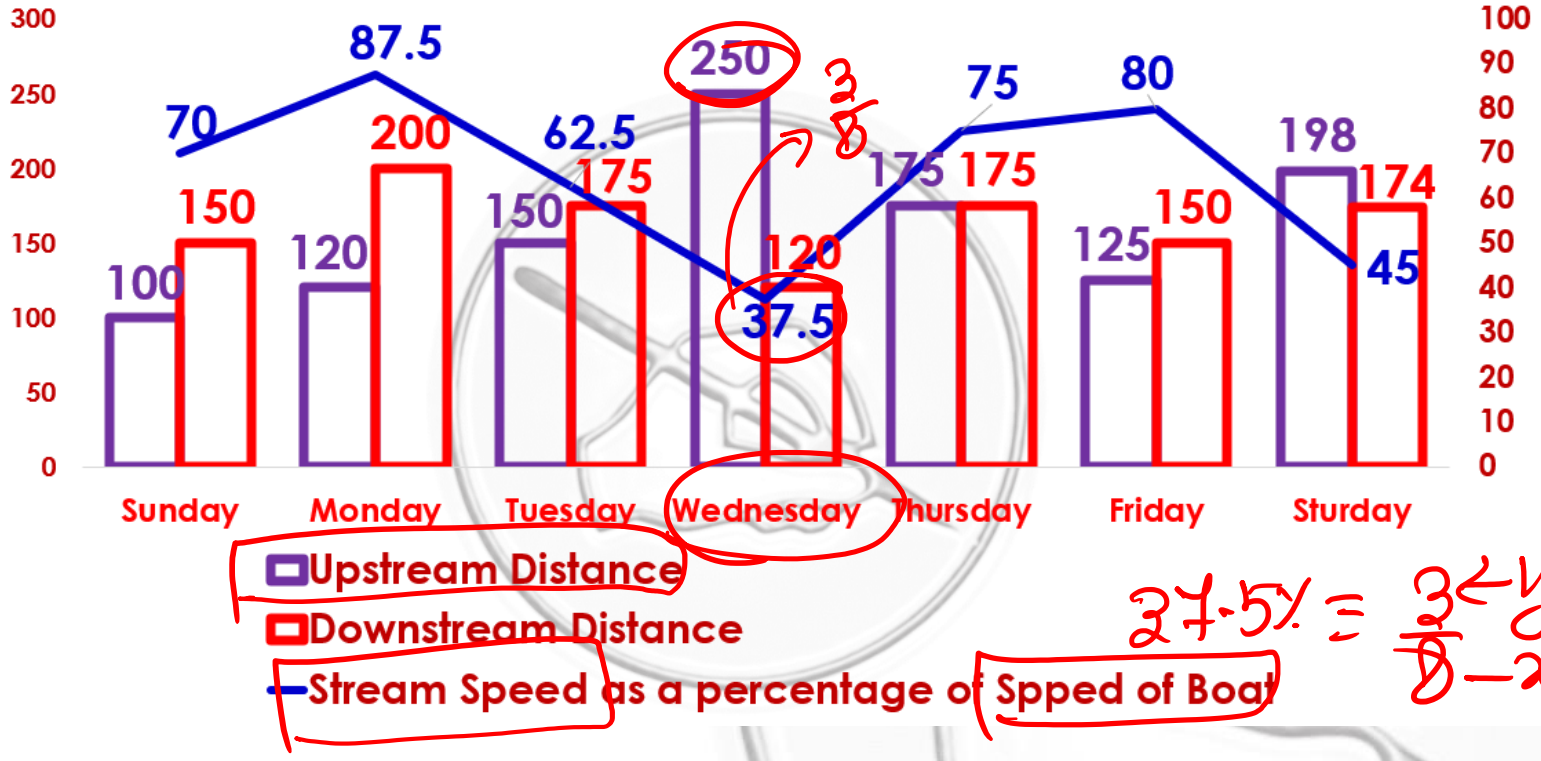

Find the time taken by the boat to go upstream on Wednesday, if the downstream is 8.8 km/hr.

बुधवार को नाव को उर्धप्रवाह दिशा में जाने के लिए समय ज्ञात कीजिये, यदि अनुप्रवाह गति 8.8 किमी/घंटा है।

1. $11\frac{4}{11}$
2. $11\frac{4}{11}$
3. 11
4. 12
5. None of these

Ans

$37.5\% = \frac{3}{8}$

$x : y$

$B : 3$

$u : d = (B-3) : (B+3)$

$= 5 : 11$

$u = \frac{8.8}{11} \times 5 = 4$ km/h

$\therefore t = \frac{250}{4} = 62.5$ hr

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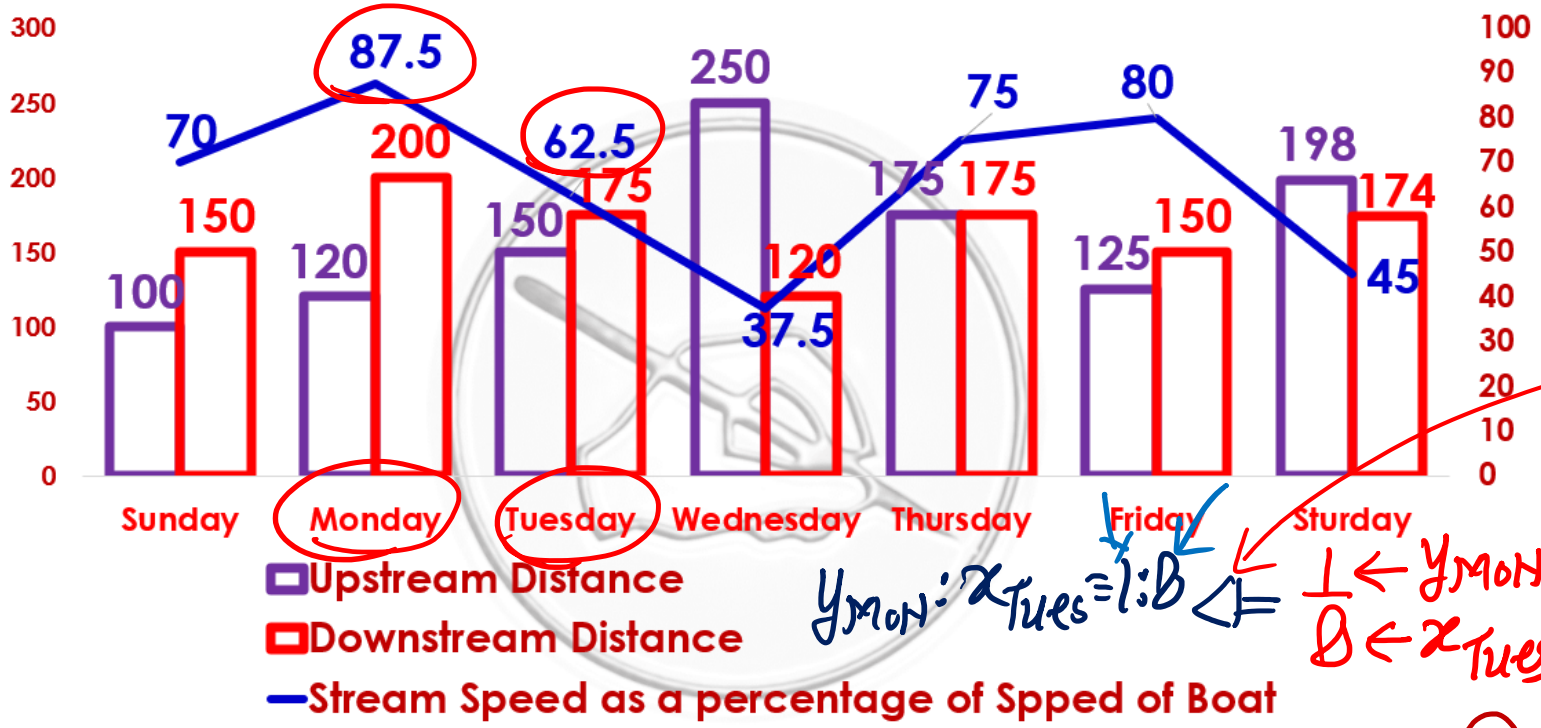

Find the ratio of the upstream on Monday and downstream on Tuesday, if the speed of the stream on Monday is 12.5% of the speed of the boat in still water on Tuesday.

सोमवार को नाव के उर्धप्रवाह गति और मंगलवार को अनुप्रवाह गति के अनुपात का पता लगाए, यदि सोमवार को धारा की गति मंगलवार को शांत पानी में नाव की गति का 12.5% है।

1. 1:8 2. 1:7 3. 1:91
4. 4:9 5. Data Inadequate

$y_{MON} : x_{Tues} = 1 : 8$ <= $1 \leftarrow y_{MON}$, $8 \leftarrow x_{Tues}$

x y

$\frac{7}{8}$ MON 8 : 7 *] × 8 × 1 = 8 : 7

$\frac{5}{8}$ TUE * 8 : 5] × 7 × 8 = 56 : 35

Up MON : Down Tue

8 − 7 : 56 + 35

= 1 : 91

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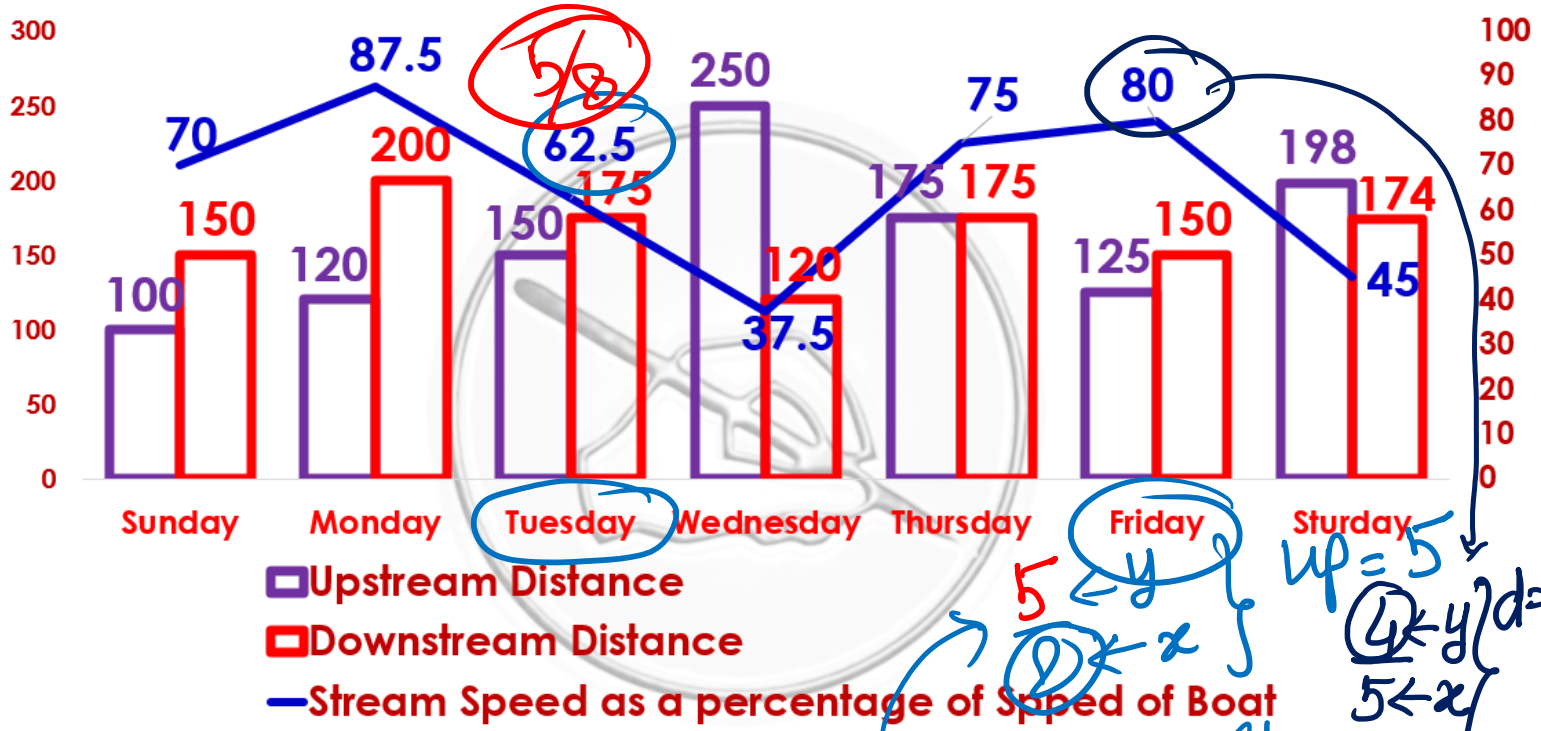

The upstream speed of boat on Tuesday is 25 km/hr and the downstream speed of the boat on Friday is 40 km/hr; find the ratio of the speed of the boat in still water on Tuesday to the speed of stream on Friday.

मंगलवार को नाव की उर्धप्रवाह गति 25 किमी/घंटा है और शुक्रवार को नाव की अनुप्रवाह गति 40 किमी/घंटा है; मंगलवार शांत पानी में नाव की गति और शुक्रवार को धारा की गति के अनुपात का पता लगाएं।

1. 8:5 2. 2:5 3. 5:8
3. 25:32 4. 3:1 5. None

Ans

Still Tues : Stream Fri

$\frac{25}{3} \times 8 : \frac{40}{9} \times 4$

$= \frac{200}{3} : \frac{160}{9}$

$= 20 : \frac{16}{3} = 5 : \frac{4}{3} = 15 : 4$

Ans

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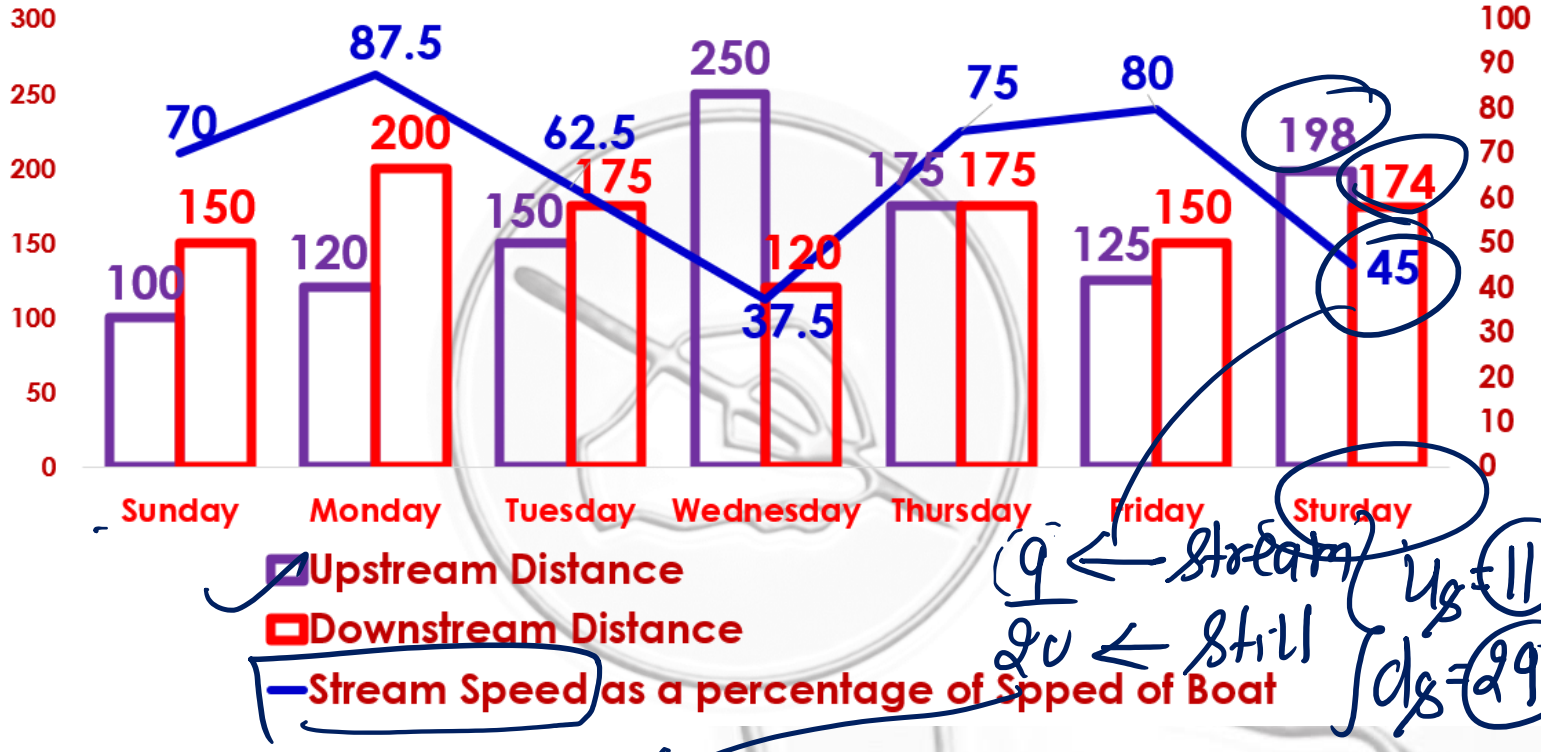

If the total time taken to cover the upstream and downstream distance on Saturday is 10 hrs, find the speed of the boat in still water on Saturday.

यदि शनिवार को उर्धप्रवाह और अनुप्रवाह दूरी को तय करने के लिए लिया गया कुल समय 10 घंटे है, तो शनिवार को शांत पानी में नाव की गति ज्ञात कीजिये।

1. 24 k/h 2. 36 k/h 3. 48 k/h
4. 32 k/h 5. None of these

Ans

9 ← Stream
20 ← Still

$u_s = 11$
$d_s = 29$

Still Stream
$20x$ $9x$

$u_s = 11x$
$d_s = 29x$

$20 \times 2.4 = 48$ k/h
Ans

$$\frac{198}{11x} + \frac{174}{29x} = 10$$

$$\Rightarrow \frac{1}{x}\left[18 + 6\right] = 10$$

$$\Rightarrow \frac{24}{x} = 10$$

$$\boxed{x = 2.4}$$

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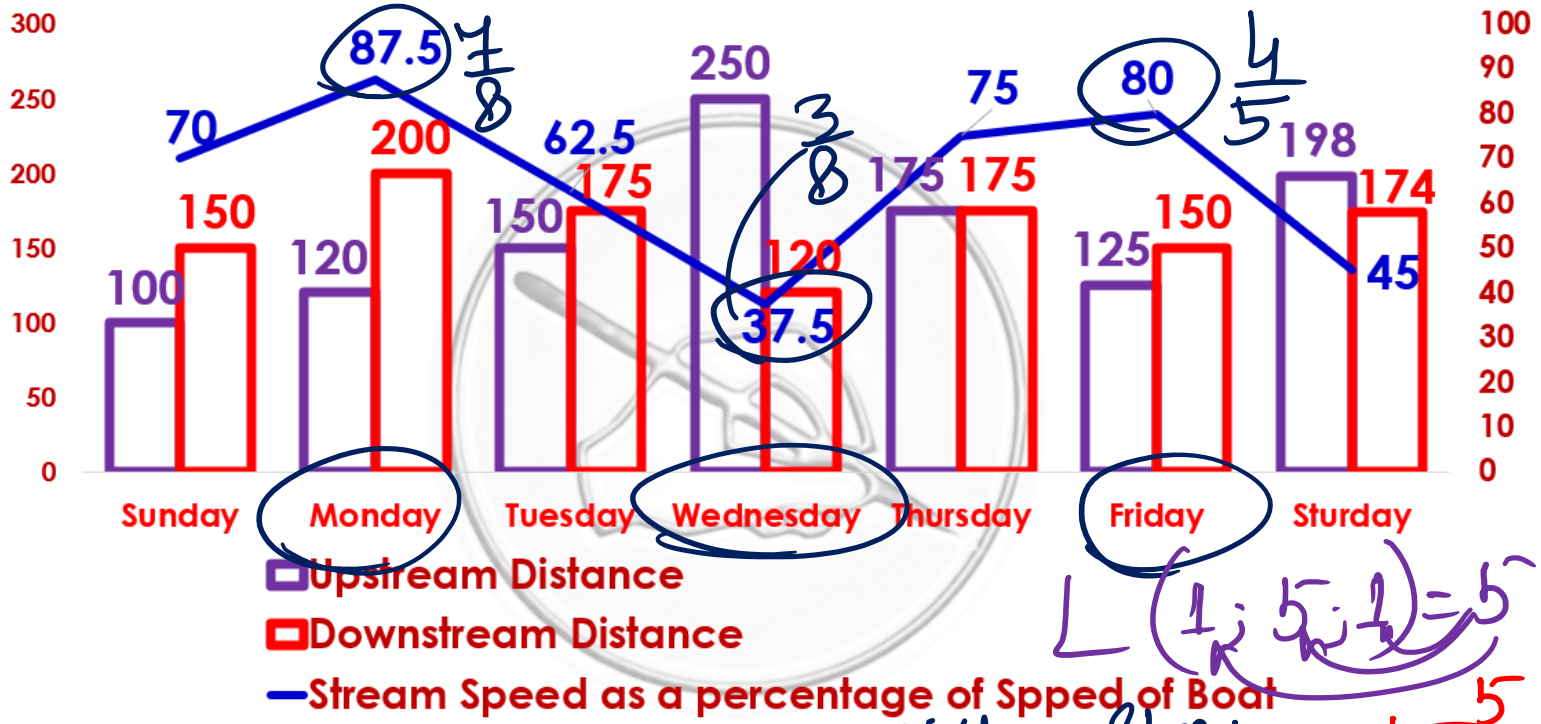

If the upstream speed of the boat on Monday, Wednesday and Friday is equal, find the ratio of the speed of the stream respectively on the given days.

यदि सोमवार, बुधवार और शुक्रवार को नाव की उर्धप्रवाह गति समान है, तो दिए गए दिनों में क्रमशः धारा की गति का अनुपात ज्ञात करें।

1. 15:16:19
2. 13:13:12
3. 35:36:20
4. 40:8:25
5. Data Inadequate

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LIVE CLASS

महासंग्राम

Data Interpretation & Data Analysis

(Prelims + Mains) For

SBI & IBPS PO/Clerk 2020-21

Starts Jan 06, 2021

5:30 PM To 6:30 PM

BILINGUAL

SBI PO
RRB PO
PO/MT
Mains Focused

60 days
D I
Module

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UPCOMING ONLINE BATCHES

JANUARY 2021

6 JAN 2021

10:30 AM to 12:30 PM
LIVE PREMIUM SILVER CARD
(CGL & CHSL)

05:30 PM to 07:30 PM
LIVE PREMIUM SILVER CARD
(IBPS PO & CLERK)

BILINGUAL

01:00 PM to 03:00 PM
LIVE PREMIUM GREEN CARD
(IBPS PO & CLERK)

ENGLISH MEDIUM

13 JAN 2021

05:30 PM to 07:30 PM
LIVE PREMIUM SILVER CARD
(CGL & CHSL)

03:00 PM to 05:00 PM
LIVE PREMIUM GREEN CARD
(IBPS PO & CLERK)

BILINGUAL

20 JAN 2021

10:30 AM to 12:00 PM
LIVE PREMIUM GREEN CARD
(IBPS PO & CLERK)

BILINGUAL

07:30 PM to 09:30 PM
LIVE PREMIUM SILVER CARD
(CGL & CHSL)

ENGLISH MEDIUM

27 JAN 2021

08:00 AM to 10:00 AM
LIVE PREMIUM GREEN CARD
(IBPS PO & CLERK)

01:00 PM to 03:00 PM
LIVE PREMIUM SILVER CARD
(CGL & CHSL)

BILINGUAL

03:00 PM to 05:00 PM
LIVE PREMIUM SILVER CARD
(CGL & CHSL)

07:30 PM to 09:30 PM
LIVE PREMIUM GREEN CARD
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Mind Twister/दिमाग घुमा देने वाला:

The ratio of the height of a tower and my distance from its foot changes from $1:\sqrt{3}$ to $\sqrt{3}:1$, when I moved 200 m towards the foot of the tower. Find the height of the tower.

एक टॉवर की ऊंचाई और उसके पाद से मेरी दूरी का अनुपात $1:\sqrt{3}$ से $\sqrt{3}:1$ तक बदल जाता है, जब मैं टॉवर के पाद की ओर 200 मीटर चला गया। मीनार की ऊँचाई ज्ञात कीजिए।

Stay tuned – 18 Jan - at 8:30 am

Two Very Imp DI asked in 2018

IBPS PO Mains

पढ़ना नहीं, सीखना है

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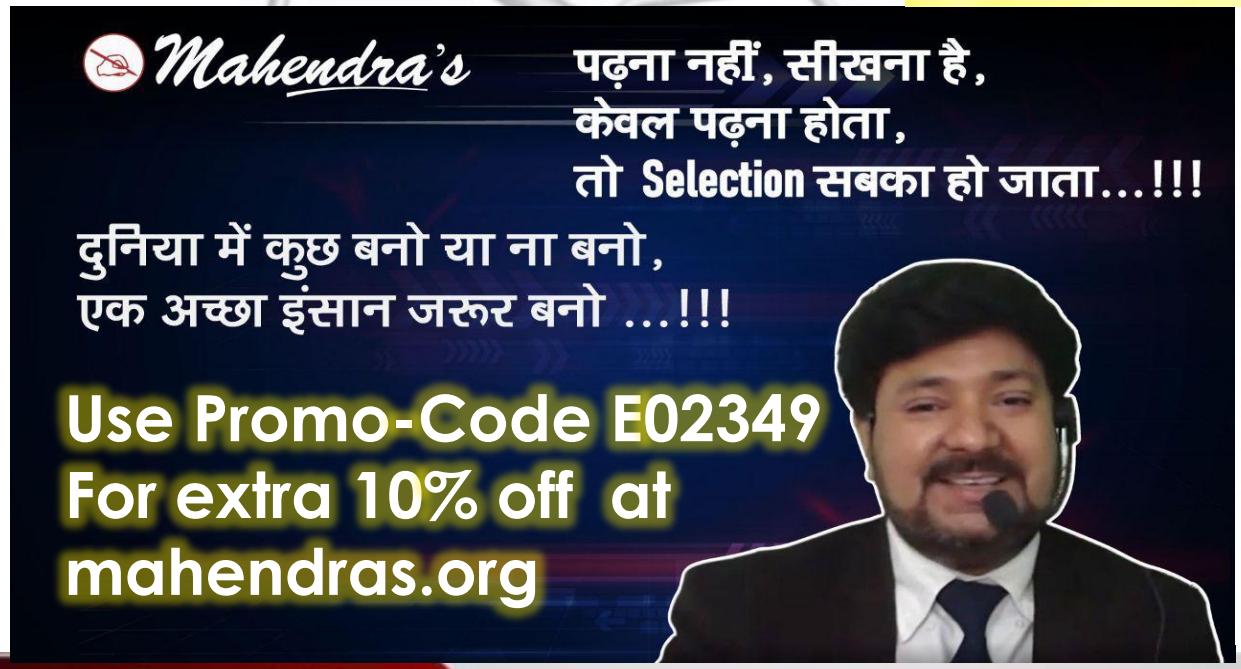
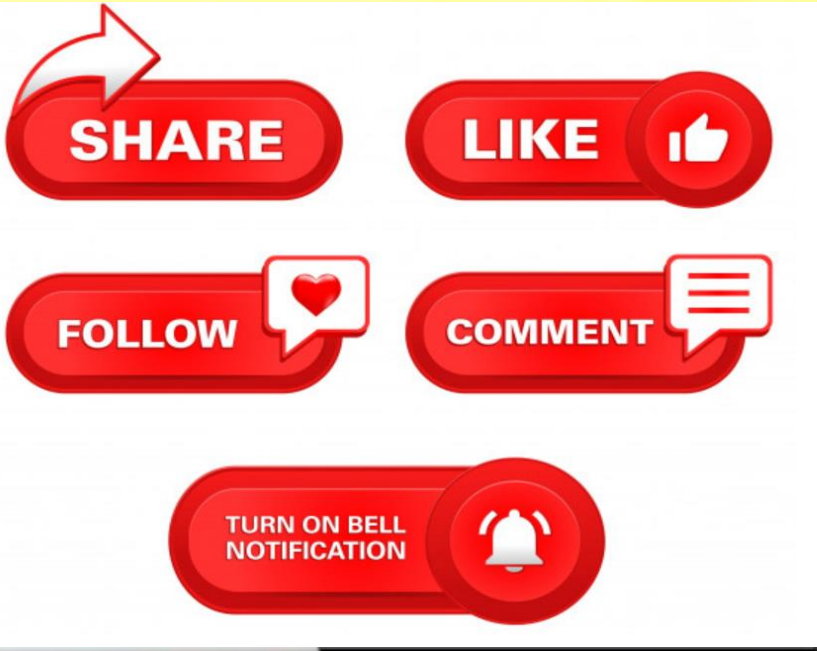
Stay tuned – 18 Jan - at 8:30 am

Two Very Imp DI asked in 2018 IBPS PO Mains

पढ़ना नहीं, सीखना है





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