BOOST UP PDFS | Quantitative Aptitude | Speed, Distance & Time (Moderate Level Part-1)

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1. Two trains one from Hyderabad to Cochin and another from Cochin to Hyderabad start simultaneously. After they meet, Trains reach their destinations after 4hrs and 9hrs respectively. Find the ratio of the speeds

a.1:2

b.3:2

c.2:3

d.2:1

e. None of these

2. Two cars start from a place with a speed of 40 kmph at an interval of 10 minutes. What is the speed of a man coming from the opposite direction towards the place if he meets the cars at an interval of 8 minutes?

a. 10 kmph

b. 13 kmph

c. 14 kmph

e. 16 kmph

e. None of these

3. Waking 3/4 of his normal speed, Ravi was 18 minutes late in reaching his office. The usual time took to cover the distance between his home and office was:

a. 36 minutes

b. 24 minutes

c. 42 minutes

d. 54 minutes

e. None of these

4. Mr. Ravi completes a certain journey by a car. If he covered 40% of the distance at the speed of 20kmph, 50% of the distance at 25 kmph and the remaining of the distance at 10 kmph, then what will be the speed?

a. 15 kmph

b. 20 kmph

c. 18 kmph

d. 14 kmph

e. None of these

5. Ajay walked at 10 kmph for certain part of the journey and then he took an auto for the remaining part of the journey travelling at 30 kmph. If he took 10 hours for the entire journey, what part of journey did he traveled by auto if the average speed of the entire journey be 18 kmph?

a. 132 km
b. 145 km
c. 128 km
d. 120 km
e. None of these

6. Rani started walking to the station half a km from her home at 1 kmph to catch the train in time. After 6 minutes she realized that she had forgotten her purse at home and returned with increased, but constant speed to get it succeeded in catching the train. Find her latter speed in kmph.

a. 1.5 kmph
b. 1.2 kmph
c. 2.2 kmph
d. 3.5 kmph
e. None of these

7. Walking at 3/2 of his normal speed Sehwag takes 40 minutes less than the usual time. What is the new time taken by Sehwag?

a. 6 hours
b. 5 hours
c. 4 hours
d. 8 hours
e. 2 hours

8. A starts from a place at 11 am and travels at a speed of 4kmph, B starts at 1 pm and travels with a speed of 1kmph for 1st hour, 2kmph for next 1 hour and so on. At what time B catch up with A ?

a.9.26pm
b.9.45pm
c.9.54pm
d.10.45pm
e. None of these

9.The distance between 2 stations are 800km. One train starts at 5am from A with 62kmph.Another train starts at 7am from B at 50kmph. When they will meet ?

a.12.3pm
b.1.30pm
c.1.03pm
d.2.32pm
e. None of these

10.Two trains 180 metres and 120 metres in length are running towards each other on parallel tracks, one at the rate 65 km/hr and another at 55 km/hr. In how many seconds will they be clear of each other from the moment they meet?

a. 6
b. 9
c.12
d. 15
e. None of these

11.Pankaj travelled a certain part of the journey with speed 5 km/h and then he took an auto travelling at 25 km/h for the remaining part of the journey. He took 10 hours for the entire journey. What distance did he travelled by auto if the average speed of the entire journey be 17 km/h.

a. 750 km
b. 100 km
c. 150 km
d. 200 km
e. 250 km

12.Train-A crosses a pole in 25 seconds and another Train-B crosses as pole in 1 minute and 15 seconds. The Length of the train-A is half the length of the train-B. What is the respective ratio between the speed of the train-A to the speed of train-B?

a.3 : 2
b.3 : 4
c.4 : 3
d.5 : 4
e.4 : 7

13.Train A covers 180 km distance in 4 hours. Another train B covers the same distance in 1 hour less time than train A. What is the difference in the distances covered by these trains in one hour if they are moving in the same direction?

a. 35 km
b. 9 km
c. 45 km
d. 40 km
e. 15 km

14.Car A leaves the city at 5pmm and is driven at a speed of 30km/hr. 3hrs later another car B leaves the city in the same direction as car A. In how much time will car B be 12kms ahead of car A if the speed of car B is 50km/hr?

a. 5hrs
b. 4.2hrs
c. 8hrs
d. 5.1hrs
e. 12hrs

15.Two friends Ram and Ravi are travelling from point A to B, which are 600km apart. Travelling at a certain speed Ram takes 1hr more than Ravi to reach point B. If Ram doubles his speed he will take 1hr 30mins less than ravi to reach point B. At what speed was Ram driving from point A to B?

a. 150km/hr
b. 120km/hr
c. 80km/hr
d. 45km/hr
e. 92km/hr

16.Two trains X and Y start at the same time in the opposite direction from two points P and Q and arrive at their destinations 36 and 25 hours respectively after their meeting each other. At what speed does the second train Y travel if the first train travels at 80 km/h.

a. 80 km/hr
b. 90 km/hr
c. 70 km/hr
d. 96 km/hr
e. 60 km/hr

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17.Two trains running in opposite directions cross a man standing on the platform in 54 seconds and 32 seconds respectively and they cross each other in 44 seconds. Find the ratio of their speeds .

a. 4:7

b. 6:5

c. 9:7

d. 5:3

e. 7:5

18.Two trains of equal length, running with the speeds of 40kmph and 60 kmph, take 40 seconds to cross each other while they are running in the same direction. What time will they take to cross each other if they are running in opposite directions ?

a. 8 sec.

b. 10 sec.

c. 12 sec.

d. 9 sec.

e. 6 sec.

19.Andy lives on 10th floor and Bimal lives on 45th floor. Andy goes up at a rate of 34 floors per minute and Bimal comes down at a rate of 36 floors per minute. At which floor they will meet?

a. 27

b. 26

c. 18

d. 32

e. None of these

20.A train running at 7/11 of its own speed reached a place in 33 hrs. How much time could be saved if the train runs at its own speed?

a. 10 hrs

b. 12 hrs

c. 8 hrs

d. 16 hrs

e. None of these

21.A train traveling at 96 km/h completely crosses another train having half its length and traveling in the opposite direction at 84 km/h in 6 s. It also passes a railway platform in 45 s. The length of the platform is:

a. 400 m

b. 500 m

c. 660 m

d. 350 m

e. None of these

22.A runs 3 2/3 times as fast as B. If A gives B a start of 80 m. How far must the winning post be from the starting point of A so that A and B reach it at the same time?

a. 200 m

b. 110 m

c. 150 m

d. 180 m

e. None of these

23.Two places A and B are at a certain distance. Ramu started from A towards B at a speed of 40

kmph. After 2 hours Raju started from B towards A at a speed of 60 kmph. If they meet at a place C then ratio of ratio of time taken by Raju to Ramu to reach Place C is 2:3. Then what is the distance between A and B?

a. 300 Km
b. 400 Km
c. 480 Km
d. 600 Km
e. Cannot be determined

24.Ramu started from A towards B at a speed of 20Km/hr and Raju started from B towards A. They crossed each other after one hour. Raju reached his destination 5/6 hour earlier than Ramu reached his destination.Then what is the distance between A and B?

a. 40 Km
b. 50 Km
c. 60 Km
d. 80 Km
e. Cannot be determined

25.Two Cars started at same time, same place and towards same direction. First Car goes at uniform speed of 12Km/hr. Second Car goes at speed of 4 Km/hr in first hour and increases it speed by 1 Km/hr for every hour. Then what is the distance traveled by car B when the both the Cars meet for the first time?

a. 196 Km
b. 198 Km
c. 200 Km
d. 204 Km
e. None

26.A boat covers a distance of 135 km downstream in 9 hours. To cover the same distance upstream, the boat takes 6 hours longer. What is the speed of the man in still water?

a. 12 kmph
b. 10 kmph
c. 14 kmph
d. 15 kmph
e. 18 kmph

27. A boat can travel 55 km downstream in 66 min. The ratio of the speed of the boat in still water to the speed of the stream is 4: 1. How much time will the boat take to cover 72 km upstream?

a. 2 hour 48 min
b. 3 hour 12 min
c. 2 hour 24 min
d. 3 hour 28 min
e. None of these

28. Mahesh can swim at 20 km/hr in still water. The river flows at 8 km/hr and it takes 8 hours more upstream than downstream for the same distance. How far is the place?

a. 168 km
b. 152 km
c. 140 km
d. 124 km

e. None of these

29.A boat can travel 4 km upstream in 15 min. If the ratio of the speed of the boat in still water to the speed of the stream is 9: 5. How much time will the boat take to cover 28 km downstream?

a. 42 min

b. 30 min

c. 36 min

d. 44 min

e. None of these

30.Speed of a man in still water is 16 km/hr and the river is running at 6 km/hr. The total time taken to go to a place and come back is 8 hours. Find the distance travelled by the man?

a. 146 km

b. 110 km

c. 142 km

d. 133 km

e. None of these

31.A Boat took 3 1/2 hours less to travel a distance downstream than to travel the same distance upstream. If the speed of a boat in still water is 15 Km/hr and speed of a stream is 7 Km/hr. In total how much distance traveled by boat?

a. 36 km

b. 52 km

c. 66 km

d.44 km

e. None of these

32. A boat running upstream takes 6 hours 36 minutes to cover a certain distance, while it takes 3 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. 8: 3

b. 5: 2

c. 7: 4

d. 2: 1

e. None of these

33.A man rows to a place 40 km distance and come back in 9 hours. He finds that he can row 5 km with the stream in the same time as 4 km against the stream. The rate of the stream is?

a. 1 km/hr

b. 1.5 km/hr

c. 2 km/hr

d. 2.5 km/hr

e. None of these

34.Speed of a boat in standing water is 12 km/hr and the speed of the stream is 3 km/hr. A man rows to a place at a distance of 630 km and comes back to the starting point. The total time taken by him is?

a. 112 hrs

b. 100 hrs

c. 98 hrs

d. 85 hrs

e. None of these

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35.The speed of a Boat in standing water is 10km/hr. It traveled Down Stream from point A to B in certain time. After reaching B the Boat is powered by Engine then Boat started to return from Point B to A. The time taken for Forward journey and Backward journey are same. Then what is the speed of the stream?

a. 2 Km/hr

b. 3 Km/hr

c. 4 Km/hr

d. 5 Km/hr

e. Cannot be determined

36.A Boat covers upstream in 12 Hours 48 minutes to travel distance from Point A to B, while it takes 6 hours to cover 3/4th of the same distance running downstream. The speed of the current is 15 Km/hr. The boat covered both forward distance from A to B and backward distance from B to A. Then what is the distance between A and B?

a. 360 Km

b. 480 Km

c. 540 Km

d. 640 Km

e. Cannot be determined

37.A Ship of Length 300m traveling from point A to B downstream passes a Ghat along the river in 18 sec, while in return it passes the same Ghat in 24 sec. If the rate of current is 9 Km/hr. Then what is the length of the Ghat?

a. 50 m

b. 60 m

c. 80 m

d. 100 m

e. Cannot be determined

38.A Boat took 8 hours less to travel a distance downstream than to travel the same distance upstream. If the speed of a boat in still water is 9 Km/hr and speed of a stream is 3 Km/hr. In total how much distance traveled by boat?

a. 96 Km

b. 144 Km

c. 164 Km

d. 192 Km

e. 216 Km

39.A boat can travel 3.5km upstream in 14min. If the ratio of the speed of the boat in still water to the speed of the stream is 7:2. How much time will the boat take to cover 36km downstream?

a. 65min

b. 80min

c. 75min

d. 70min

e. None

40.A Boat took 8 hours less to travel a distance downstream than to travel the same distance upstream. If the speed of a boat in still water is 9 Km/hr and speed of a stream is 3 Km/hr. In total how much distance traveled by boat?

a. 96 Km
b. 144 Km
c. 164 Km
d. 192 Km
e. 216 Km

41.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. 5:4
b. 8:3
c. 7:6
d. 4:5
e. None of these

42.If time taken to cover (D+11) km upstream is thrice the time taken to cover (D–3) km downstream. If ratio of speed of boat in upstream to the downstream is 3 : 7 and time taken to cover (D+18) km downstream is 2.5 hours what will be the speed of current?

a. 8.2 km/h
b. 6 km/h
c. 8 km/h
d. 6.5 km/h
e. None of these

43.A boat, while going downstream in a river covered a distance of 50 miles at an average speed of 60 miles per hour. While returning, because of the water resistance, it took 1 hr 15 minutes to cover the same distance. What was the average speed during the whole journey?

a. 45 miles/h
b. 52 miles/h
c. 48 miles/h
d. 46 miles/h
e. None of these

44.A man can row 30 km upstream and 44 km downstream in 10 hrs. Also, he can row 40 km upstream and 55 km downstream in 13 hrs. Find the speed of the man in still water.

a. 5 km/hr
b. 8 km/hr
c. 10 km/hr
d. 12 km/hr
e. None of these

45.A boat's speed in still water is 5 km/hr. While river is flowing with the speed of 2 km/hr. and time taken to cover a certain distance upstream is 2 hr more than time taken to cover the same distance downstream. Find the distance.

a. 11 km
b. 10.9 km
c. 12.5 km
d. 10.5 km
e. None of these

46.A man swimming upstream takes 6 hours to cover a certain distance, while it takes 4 hours to cover the

same distance swimming downstream. What is the ratio between the speed of the man and speed of the stream respectively?

a.5 : 1

b.1 : 5

c.5 : 2

d. Cannot be determined

e. None of these

47.A man rows in still water with the speed of 4.5 km/hr to go to certain place and to come back in total of 360 minutes. Find the distance, if the river is flowing with a speed of 1.5 km/hr?

a. 10 km

b. 11.5 km

c. 12 km

d. Cannot be determined

e. None of these

48.A boat takes 1 hr less to travel 20 km downstream than to travel the same distance upstream. If the speed of the boat in still water is 15 kmph then what is the speed of the stream?

a. 10 km/hr

b. 12 km/hr

c. 6 km/hr

d. 5 km/hr

e. None of these

49.Speed of a boat in standing water is 12 kmph and the speed of the stream is 3 kmph. A man rows to a place at a distance of 6300 km and comes back to the starting point. The total time taken by him is:

a. 1120hrs

b. 1000hrs

c. 980hrs

d. 850hrs

e. None

50.The respective ratio between the speed of the boat upstream and speed of the boat downstream is 4: 9. What is the speed of the boat in still water if it covers 84 km downstream in 2 hours 20 minutes? (in km/h)

a. 24

b. 26

c. 22

d. 28

e. 30

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Answer Key with Detailed Solution

1. B

A:B = b.1/2 : a.1/2 = 9 ½ : 4½ = 3:2

2. A

Distance covered in 10 minutes at 40 kmph = distance covered in 8 minutes at (40+x) kmph.

40*10/60 = 8/60 * (40+x)

20 * 5 = 80 + 2x

x = 10 kmph

3. D

3/4 of speed = 4/3 of original time

4/3 of original time = original time + 18 minutes;

1/3rd of original time = 18 minutes;

Thus, original time = 18*3 = 54 minutes.

4. B

Assume Total distance = 100 km.

So speed = 100/[(40/20)+(50/25)+(10/10];

speed = 100/[(2)+(2)+(1)];

= 100/[5]

= 20 kmph.

5. D

Total distance = 18*10 = 180

Journey traveled by auto = x hours

30 * x + (10-x)10 = 180

30x + 100 – 10x = 180

20x = 80

x = 4 hours

Distance traveled by auto = 4 * 30 = 120 km

6. A

Distance covered in 6 minute = 6*(1000/60) = 100

She has to cover (500+100) meters in 24 minutes

Required speed = (600/1000)/(24/60) = 1.5kmph

7. E

3/2 of speed = 2/3 of original time

2/3 of original time = original time – 40 minutes;

1/3rd of original time = 40 minutes;

Thus, original time = 40*3 = 120 minutes = 2 hours

8. A

A=> 1h = 4km…….10h = 40km

B => 1+2+3+4+5+6+7+8 = 36km

They will meet b/w 9 – 10 pm

4*60/9 = 26.40

9.26pm

9. C

7 – 5 = 2h diff

2*62 = 124

Remaining distance to cover by train from A = 800 – 124 = 676

62+50 = 676/t

T = 676/112 = 6.03

7+6.03 = 1.03pm

10. B

Required time = Sum of the lengths of trains / Relative speed

Relative speed = 65 + 55 = 120 kmph = (120 × 5) / 18 m/sec

Required time = (180 + 120) / [(120 × 5) / 18]

= (300 × 18) / (120 × 5) = 9 seconds

11.C

Sol. Let time taken by Pankaj in walking be 't' hours

ATQ,

5t + 25 [10 - t] = 17 × 10

⇒ 20t = 80

⇒ t = 4 hours

∴ Distance travelled by auto

=25× (10-4)

= 25 × 6 = 150 km

12. A

Sol. Let length of train-A is ℓ

∴ length of train-B = 2ℓ

∴ Required ratio of speeds $= \frac{\frac{\ell}{25}}{\frac{2\ell}{75}} = \frac{3}{2}$ = 3: 2

13. E

Sol. First train speed = 180/4 = 45 km/hr

2nd train speed = 60 km/hr

∴ $Difference$ in distance covered in 1 hr = 60-45 =15 km

14. D

Car A travels 3hrs. 3*30=90km

Difference between speeds 50-30=20km/hr

Distance ahead 12km . 90+12=102km

T=D/S ===>102/20=5.1hrs.

15.B

T = D/S. Let x be the speed

600/x = T+1 , 600/2x = T – 3/2

Equate T

(600-x)/x = (600+3x)/2x

1200-12x = 600+3x ==>x=120km.

16. D

Let the speed and time of two trains be s1 and s2, and t1 and t2.

$s1/s2 = (t2/t1)^{1/2}$

=> 80/s2 = 5/6

=> s2 = 96km/hr.

17. B

Let the speeds of the two trains be x m/sec and y m/sec respectively.

Then, length of the first train = 54x metres, and length of the second train = 32y metres.

Therefore, (54x+32y)/(x+y) = 44

=>54x – 44x = 44y – 32y

=> x/y = 6/5

18. A

Relative Speed = (60 -40) = 20 x 5/18 = 100/18

Time = 40

Distance = 40 x 100/18 = 2000/9

Relative Speed = 60 + 40 = 100 x 5/18

Time = (2000*18)/(9*500) = 8 sec.

19. A

Total floors between Andy & Bimal = 45 – 10
= 35 floors
Relative speed = 34 + 36 = 70 floor/min
Time taken by them to meet
$= \frac{\text{Total floors}}{\text{Relative Speed}} = \frac{35}{70} = \frac{1}{2}$ min
Andy travels in $\frac{1}{2}$ min $= \frac{1}{2} \times 34 = 17$ floors
Floor at which Andy & Bimal will meet
$= 10 + 17 = 27^{th}$

20. B

Distance is same. Then,
$\frac{s_2}{s_1} = \frac{t_1}{t_2}$
$\frac{7}{11} = \frac{t_1}{33}$
$\Rightarrow t_1 = 21$ hour
Total time saved = 33 – 21 = 12 hours

21. E

Let the length of the train be x m
Then length of another train $= \frac{x}{2}$ m
ATQ,
$\frac{x + \frac{x}{2}}{(84 + 96) \times \frac{5}{18}} = 6$
x = 200 m
Let the length of platform be y m
$\frac{200 + y}{96 \times \frac{5}{18}} = 45$
y = 1000 m

22. B

Let the distance of winning post from starting point of A be x m
∴ Distance travelled by A = x m
Distance travelled by B = x – 80 m
And
Speed of A $= 3\frac{2}{3}$ speed of B
$\frac{\text{Speed of A}}{\text{Speed of B}} = \frac{11}{3}$
Time is same for Both A & B
$\therefore \frac{x}{x - 80} = \frac{11}{3}$

23. C

40t 1 +60t 2 = d

T 1 /t 2 = 3/2

T 1 – t 2 = 2

Solving d = 480 Km

24. B

1 = x/20 = D-x/s 2

5/6 = D(1/20 – 1/s 2)

D =50

25. D

12*x = x/2(2*4+(x-1)*1)

X= 17

D = 17*12 =204

26. A

Let the speed of the man in still water be x and the speed of the stream be y.

Downstream speed = x + y

And upstream speed = x – y

Now, x + y = 135 / 9 = 15 ... (i)

And x – y = 135 / 15 = 9 ... (ii)

Solving equation (i) and (ii), we get

x = 12 kmph, y = 3 kmph.

27. C

Speed of downstream = D/T = 55/(66/60) = 55*(60/66) = 50 km/hr

The ratio of the speed of the boat in still water to the speed of the stream

= > 4: 1 (4x, x)

5x = 50

X = 10

Speed of upstream = 4x – x = 3x = 30 km/hr

Distance = 72 km

Time = D/S = 72/30 = 2 2/5 hr = 2 hour 24 min

28. A

Speed of downstream = (20 + 8) = 28 km/hr

Speed of upstream = (20-8) = 12 km/hr

According to the question,

[x/12 – x/28] = 8

16x/(12*28) = 8

= > x= 168 km

29. B

The ratio of the speed of the boat in still water to the speed of the stream = 9: 5 (9x, 5x)

Speed of downstream = 9x + 5x = 14x

Speed of upstream = 9x – 5x = 4x

Upstream speed = 4/(15/60) = 16 km/hr

4x = 16

x = 4

Downstream speed = 14*4 = 56 km/hr

Time = D/S = 28/56 = ½ hr = 30 min

30. B

Speed of downstream = 16 + 6 = 22 km/hr

Speed of upstream = 16 – 6 = 10 km/hr

Let the distance travelled be x,

(x/22) + (x/10) = 8

X= 55 km

31. D

Speed of downstream = 15 + 7 = 22 km/hr

Speed of upstream = 15 – 7 = 8 km/hr

According to the question,

7/2 =D/8 – D/22

7/2 = (22D – 8D./(22*8)

D = 44 km

32. A

Let speed of upstream be x km/hr and that of downstream be y km/hr,

Then, distance covered upstream in 6 hrs 36 min = Distance covered downstream in 3 hrs.

x*(33/5) = 3y

y =11x/5

Required ratio = (y + x)/2 : (y – x)/2

= > 16x/10 : 6x/10

= >8 : 3

33. A

Speed downstream = 5/x

Speed upstream = 4/x

40/(5/x) + 40/(4/x) = 9

X = ½

So, Speed downstream = 10 km/hr, Speed upstream = 8 km/hr.

Rate of the stream = ½(Speed of downstream – Speed of upstream)

= 1/2 * 2 = 1 km/hr

34.A

Downstream speed = (12 + 3) = 15 km/hr

Upstream speed = (12 – 3) = 9 km/hr

Total time taken =630/15+630/9

=42+70==>112 hrs.

35. E

S+R = D/t ;S-R+x = D/t

S+R = S-R+x

R =x/2

36. D

(S+R)*8 = (S-R)*64/5

S:R = 13:3

R = 15 S = 65

D = (65+15) *8 = 640

37. B

(S+9)*18 = (S-9)*24

S =63

300+x = 72*5/18*18

x =60

38. A

Speed of downstream = 9 + 3 = 12 km/hr

Speed of upstream = 9-3 = 6 km/hr

According to the question,

8 =D/6 – D/12

8 = (2D – D./12

8 = D/12

D =96 km

39. B

Speed of still water : stream = 7x : 2x

Downstream =7x + 2x = 9x; upstream = 7x – 2x = 5x

Upstream speed = 3.5*60/14 = 15km/hr

5x = 15

x = 3

Speed of downstream = 9*3 = 27 km/hr

Time taken for 36km = 36*60/27 = 80min

40. A

Speed of downstream = 9 + 3 = 12 km/hr

Speed of upstream = 9-3 = 6 km/hr

According to the question,

8 =D/6 – D/12

8 = (2D – D./12

8 = D/12

D =96 km

41. B

Let upstream be x km/hr and that downstream be y km/hr.

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

X*(44/5) =4y

44x/5 =4y

Y=11x/5

Required ratio (y+x)/2 : (y-x)/2

16x/10 : 6x/10

8:3

42. C

	Downstream	Upstream
Speed →	$7x$ km/hr	: $3x$ km/hr

$$\left(\frac{D+11}{3x}\right) = 3\left(\frac{D-3}{7x}\right)$$

$$\Rightarrow D = 52$$

$$7x = \frac{D+18}{2.5}$$

$$\Rightarrow x = 4$$

Speed of current $= 2x = 8$ km/hr

43. C

$$\text{Average speed} = \frac{50+50}{\frac{50}{60}+\frac{75}{60}} = \frac{100\times 60}{125} = 48 \text{ miles/hr}$$

44. B

Let upstream speed = x, downstream speed = y km/hr

Then, 30/x + 44/y = 10 and 40/x + 55/y = 13

Put 1/x = a, 1/y = b

Solve the equations.

A = 1/5, b = 1/11

So, x = 5, y = 11

Speed in still water = (5+11)/2 = 8

45. D

Let the distance be X km

Speed of downstream = (5 + 2) =7

Speed of upstream = (5 - 2) =3

(x/3)+2 = x/7

(x+6)/3 = x/7

7X – 3X = 42

∴ X = 10.5 km

46. A

Let the man's speed upstream be X and that downstream be Y

Then, distance covered upstream in 6 hrs = Distance covered downstream in 4 hr

6×X = 4×Y

Y = 3/2 X

Required Ratio = [(Y+X)/2]: [(Y-X)/2]

=(1/2)[(3X/2) + X]:1/2[(3X/2) - X]

= (1/2)(5X/2) : 1/2(1X/2)

= (5X/4) : (X/4)

= 5 : 1

47. C

The speed of the man = 4.5 km/hr

The speed of the stream = 1.5 km/hr and time = 360 min = 6 hr

Hence, speed downstream = 6 km/hr; speed upstream = 3 km/hr

(D/6)+(D/3)=6 hr = 3D + 6D = 18×6 = 108

9D = 108

D = 12 km

48. D

Let the speed of the stream X kmph. Then,

Speed of downstream = (15 + X)

Speed of upstream = (15 - X)

[20/(15-x)] – [20/(15+x)] = 1

[1/(15-x)] – [1/(15+x)] = 1/20

40X = 225 – X2

X2 + 40X - 225 = 0

(X+ 40)(X - 5) = 0

X = 5 kmph.

Hence, speed of the stream is 5 kmph

49. A

Downstream speed = (12 + 3) = 15 km/hr

Upstream speed = (12 – 3) = 9 km/hr

Total time taken =6300/15+6300/9

=420+700==>1120hrs.

50. B

Speed of boat in downstream $= \frac{84}{2+\frac{20}{60}} = \frac{84}{2+\frac{1}{3}}$

$= \frac{84 \times 3}{6+1} = \frac{84 \times 3}{7}$

$= 36$ km/h

$\therefore$ Speed of boat in upstream $= 36 \times \frac{4}{9} = 16$ km/h

$\therefore$ Speed of boat in still water

$= \frac{\text{Speed of boat in downstream} + \text{speed of boat in upstream}}{2}$

$= \frac{36+16}{2} = 26$ km/h