29 Jan 2025 Live Classes Schedule

Time	Class	Instructor
9:00AM	29 JANUARY 2025 DAILY DEFENCE UPDATES	DIVYANSHU SIR
10:00AM	29 JANUARY 2025 DAILY CURRENT AFFAIRS	RUBY MA'AM

AFCAT 1 2025 LIVE CLASSES

Time	Class	Instructor
12:30PM	REASONING - BLOOD RELATIONS	RUBY MA'AM
3:00PM	STATIC GK - GI TAGS	DIVYANSHU SIR
4:30PM	ENGLISH - ANTONYMS - CLASS 1	ANURADHA MA'AM
5:30PM	MATHS - SPEED DISTANCE TIME	NAVJYOTI SIR

NDA 1 2025 LIVE CLASSES

Time	Class	Instructor
10:00AM	MATHS - ANALYTICAL GEOMETRY 2D - CLASS 2	NAVJYOTI SIR
11:30AM	MODERN HISTORY - CLASS 1	RUBY MA'AM
1:00PM	PHYSICS - FORCE & LAWS OF MOTION	NAVJYOTI SIR
4:30PM	ENGLISH - ANTONYMS - CLASS 1	ANURADHA MA'AM

CDS 1 2025 LIVE CLASSES

Time	Class	Instructor
11:30AM	MODERN HISTORY - CLASS 1	RUBY MA'AM
1:00PM	PHYSICS - FORCE & LAWS OF MOTION	NAVJYOTI SIR
4:30PM	ENGLISH - ANTONYMS - CLASS 1	ANURADHA MA'AM
5:30PM	MATHS - SPEED DISTANCE TIME	NAVJYOTI SIR

The speeds of four cars are 2u, 3u, 4u and xu and the time taken by them to cover the same distance is xt, 4t, 3t and 2t respectively, where x, u, t are real numbers. What is the value of x ?

(a)   8

(b)   6

(c)   5

(d)   2

$$2u \times xt = 3u \times 4t$$

$$2x = 12$$

$$x = 6$$

The speeds of four cars are 2u, 3u, 4u and xu and the time taken by them to cover the same distance is xt, 4t, 3t and 2t respectively, where x, u, t are real numbers. What is the value of x ?

(a)   8

(b)   6

(c)   5

(d)   2

Ans: (b)

Q) A scooterist completes a certain journey in 10 h. He covers half the distance at 30 km/h and the rest at 70 km/h. What is total distance of the journey ?

(a) 210 km (b) 400 km

(c) 420 km (d) 500 km

$$\frac{d/2}{30} + \frac{d/2}{70} = 10$$

$$\frac{d}{2}\left(\frac{100}{2100}\right) = 10$$

$$d = 10 \times 42 = \underline{420\ km}$$

Q) A scooterist completes a certain journey in 10 h. He covers half the distance at 30 km/h and the rest at 70 km/h. What is total distance of the journey ?

(a)   210 km   (b)   400 km
(c)   420 km   (d)   500 km

Ans: (c)

Q) B starts 4 minutes after A from the same point, for a place at a distance of 7 miles from the starting point. A on reaching the destination turns back and walks a mile where he meets B. If A's speed is a mile in 8 minutes then B's speed is a mile in _____ minutes.

(a) 9   (b) 12   (c) 10   (d) 8

$$P \xleftarrow{\quad 6 \text{ mile} \quad} \bullet \xrightarrow{\quad} Q$$
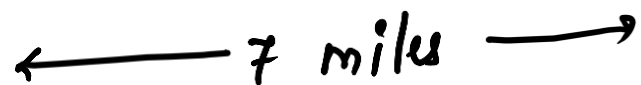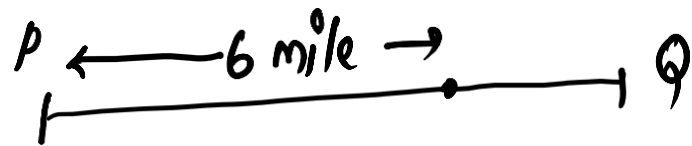
$$\xleftarrow{\quad 7 \text{ miles} \quad}$$

Total distance by $A = 7 + 1 = 8$ miles

Time for $A = \dfrac{8}{\left(\frac{1}{8}\right)} = \underline{64 \text{ min}}$

$(1 \text{ mile} \longrightarrow 8 \text{ mins})$

$$64 = 4 + \left(\dfrac{6}{V_B}\right)$$

$$64 = 4 + \left(\frac{6}{V_B}\right)$$

$$60 = \frac{6}{V_B}$$

$$V_B = \frac{6}{60} = \frac{1}{10} \text{ miles} / \text{min}$$

$$\frac{1}{10} \text{ miles} \longrightarrow 1 \text{ min}$$

$$1 \text{ mile} \longrightarrow \boxed{10 \text{ min}}$$

Q) B starts 4 minutes after A from the same point, for a place at a distance of 7 miles from the starting point. A on reaching the destination turns back and walks a mile where he meets B. If A's speed is a mile in 8 minutes then B's speed is a mile in ____ minutes.

(a) 9   (b) 12   (c) 10   (d) 8

Ans: (c)

Q) A train crosses a telegraph post in 8s and a bridge 200 m long in 24 s. What is the length of the train ?

(a) 100 m   (b) 120 m

(c) 140 m   (d) 160 m

$'L'$ m — length of train

$'v'$ m/s — speed " "

$$\frac{L}{v} = 8 \Rightarrow L = 8v \quad —(1)$$

$$L = 8v$$

$$\frac{L + 200}{v} = 24 \Rightarrow 8v + 200 = 24v$$

$$16v = 200 \Rightarrow v = \frac{200}{16} = \frac{25}{2}$$

$$= 8 \times \frac{25}{2}$$

$$= \boxed{100\,m}$$

Q) A train crosses a telegraph post in 8s and a bridge 200 m long in 24 s. What is the length of the train ?

(a)   100 m   (b)   120 m
(c)   140 m   (d)   160 m

Ans: (a)

Q) The speeds of three buses are in the ratio $2:3:4$. The time taken by these buses to travel the same distance will be in the ratio

(a) $2:3:4$ (b) $4:3:2$

(c) $4:3:6$ (d) $6:4:3$

$2x \qquad 3x \qquad 4x \qquad \Rightarrow \quad speeds$

$$\frac{d}{2x} : \frac{d}{3x} : \frac{d}{4x}$$

$$\frac{1}{2} : \frac{1}{3} : \frac{1}{4} \quad \Rightarrow \quad \boxed{6 : 4 : 3}$$

Q) The speeds of three buses are in the ratio $2 : 3 : 4$. The time taken by these buses to travel the same distance will be in the ratio
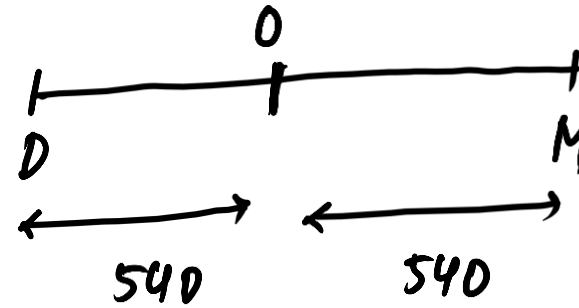
(a) $2 : 3 : 4$

(b) $4 : 3 : 2$

(c) $4 : 3 : 6$

(d) $6 : 4 : 3$

Ans: (d)

Q) A passenger train departs from Delhi at 6 pm, for Mumbai. At 9 p.m., an express train, whose average speed exceeds that of the passenger train by 15 km/hour leaves Mumbai for Delhi. Two trains meet each other mid-route. At what time do they meet, given that the distance between the cities is 1080 km ?

(a)   4 pm.
(b)   2 am.
(c)   12 midnight
(d)   6 am

Let passenger train's speed be x km/h.

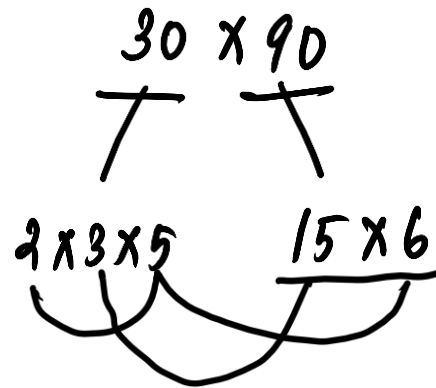express train = $(x+15)$ km/h,

$$\frac{540}{x} - \frac{540}{x+15} = 3$$

$$\frac{540}{x} - \frac{540}{x+15} = 3$$

$$\frac{540x + (540 \times 15) - 540x}{x^2 + 15x} = 3$$

$$\frac{540 \times \overset{5}{\cancel{15}}}{x^2 + 15x} = \cancel{3}$$

$$x^2 + 15x - 2700 = 0$$

$$x^2 + 60x - 45x - 2700 = 0 \longrightarrow (x+60)(x-45) = 0 \Rightarrow \begin{array}{l} x = -60 \\ x = 45 \end{array}$$

$$30 \times 90$$
$$2 \times 3 \times 5 \qquad 15 \times 6$$

$$\underline{\text{rejected}}$$

Time taken,

$$\frac{\overset{60}{\cancel{540}}}{\underset{5}{\cancel{45}}} = \underline{12 \text{ hours}}$$

6 pm + 12 hours $\longrightarrow$ 6 AM

Q) A passenger train departs from Delhi at 6 pm, for Mumbai. At 9 p.m., an express train, whose average speed exceeds that of the passenger train by 15 km/hour leaves Mumbai for Delhi. Two trains meet each other mid-route. At what time do they meet, given that the distance between the cities is 1080 km ?

(a)   4 pm.

(b)   2 am.

(c)   12 midnight

(d)   6 am

Ans: (d)

Q) A boat goes 24 km upstream and 28 km downstream in 6 hours. It goes 30km upstream and 21 km downstream in 6 hours and 30 minutes. The speed of the boat in still water is :

(a)   10 km/h   (b)   4 km/h

(c)   14 km/h   (d)   6km/h

let speed of boat in still water be x km/h.

"   "   stream   be y km/h.

$$\frac{24}{x-y} + \frac{28}{x+y} = 6 \qquad\qquad \frac{30}{x-y} + \frac{21}{x+y} = 6\cdot 5$$

$$\left. \frac{24}{x-y} + \frac{28}{x+y} = 6 \quad\right\} \quad \frac{30}{x-y} + \frac{21}{x+y} = 6.5$$

$$\frac{1}{x-y} = \frac{1}{U} = u$$

$$24u + 28v = 6 \longrightarrow \times 5$$

$$30u + 21v = 6.5 \longrightarrow \times 4$$

$$\frac{1}{x+y} = \frac{1}{D} = v$$

$$120u + 140v = 30$$

$$\frac{120u + 84v = 26}{(-) \quad (-) \quad (-)}$$

$$56v = 4 \Rightarrow \left(v = \frac{1}{14} \right) \Rightarrow \underline{D = 14}$$

$$\left. \right\} \quad u = \frac{6 - 28\left(\frac{1}{14}\right)}{24}$$

$$u = \frac{4}{24} = \frac{1}{6}$$

$$u = \frac{1}{6}$$

$$U = 6 \left(\frac{1}{u} \right)$$

$$D = 14$$

speed of boat in still water $= \dfrac{D + U}{2}$

$$= \frac{6 + 14}{2} = \boxed{10 \ km/h}$$

Q) A boat goes 24 km upstream and 28 km downstream in 6 hours. It goes 30km upstream and 21 km downstream in 6 hours and 30 minutes. The speed of the boat in still water is :

(a) 10 km/h   (b) 4 km/h

(c) 14 km/h   (d) 6km/h

Ans: (a)

Q) A train is travelling at 48 km/hour completely crosses another train having half its length and travelling in opposite direction at 42 km/hour in 12 s. It also passes a railway platform in 45 s. What is the length of the platform?

(a)   600 m   (b)   400 m

(c)   300 m   (d)   200 m

Let the length of first train be 'L' m.

$$12 = \frac{L + L/2}{(48+42) \times \frac{5}{18}} \implies 12 = \frac{\frac{3L}{2}}{90 \times \frac{5}{18}} \implies \frac{12}{2} = \frac{3L}{50}$$

$$L = 200 \, m$$

$$\frac{200 + L'}{48 \times \frac{5}{18}} = 45$$

length of platform

$$\frac{8(200 + L')}{40} = \overset{15}{\cancel{45}}$$

$$200 + L' = 15 \times 40$$

$$L' = 600 - 200$$

$$= 400m$$

Q) A train is travelling at 48 km/hour completely crosses another train having half its length and travelling in opposite direction at 42 km/hour in 12 s. It also passes a railway platform in 45 s. What is the length of the platform?

(a) 600 m

(b) 400 m

(c) 300 m

(d) 200 m

Ans: (b)

Q) In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is

(a)   1 hour

(b)   2 hours

(c)   3 hours

(d)   4 hours

Let original speed be 'v' km/h

and time (duration) of flight be 't' hours.

$$t = \frac{600}{v}$$

More time — Less time

$$\left[\frac{600}{(v-200)}\right] - \left[\frac{600}{v}\right] = \frac{1}{2}$$

$$600v - 600v + 120000 = \frac{v(v-200)}{2}$$

$$600v - 600v + 120000 = \frac{v(v-200)}{2}$$

$$240000 = v^2 - 200v$$

$$v^2 - 200v - 240000 = 0$$

$$v^2 + 400v - 600v - 240000 = 0$$

$$v = -400 \; ; \quad v = 600 \checkmark$$
$$(rejected)$$

$$\underline{600 \qquad 400}$$

$$t = \frac{600}{v}$$

$$\frac{600}{600} = \underline{1 \; hour}$$

Q) In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is

(a)   1 hour

(b)   2 hours

(c)   3 hours

(d)   4 hours

Ans: (a)

Q) A thief is noticed by a policeman from a distance of 200 m. The thief starts running and the policeman chases him. The thief and the policeman run at the speed of 10 km/hr and 11 km/hr respectively. What is the distance between them after 6 minutes ?

(a)   100 m

(b)   120 m

(c)   150 m

(d)   160 m

Relative speed $= (11 - 10)$ km/h $= 1 \times \dfrac{5}{18}$ m/s $= \dfrac{5}{18}$ m/s

6 minutes $= 6 \times 60 = 360$ seconds.

Distance covered $= \dfrac{5}{18}$ m/s $\times 360$ s $= 100$ m

Distance between them,

$200 - 100 = 100$ m

Q) A thief is noticed by a policeman from a distance of 200 m. The thief starts running and the policeman chases him. The thief and the policeman run at the speed of 10 km/hr and 11 km/hr respectively. What is the distance between them after 6 minutes ?

(a)   100 m   (b)   120 m

(c)   150 m   (d)   160 m

Ans: (a)

Q) A man cycles with a speed of 10 km/h and reaches his office at 1 p.m. However, when he cycles with a speed of 15 km/h, he reaches his office at 11 am. At what speed sould he cycle, so that he reaces his office at 12 noon?

(a)   12.5 km/h   (b)   12 km/h
(c)   13 km/h   (d)   13.5 km/h

Q) A man cycles with a speed of 10 km/h and reaches his office at 1 p.m. However, when he cycles with a speed of 15 km/h, he reaches his office at 11 am. At what speed sould he cycle, so that he reaces his office at 12 noon?

(a)   12.5 km/h   (b)   12 km/h
(c)   13 km/h   (d)   13.5 km/h

Ans: (b)

Q) The distance between two points (A and B) is 110 km. X starts running from point A at a speed of 60 km/h and Y starts running from point B at a speed of 40 km/h at the same time. They meet at a point C, somewhere on the line AB. What is the ratio of AC to BC ?

(a)   3 : 2

(b)   2 : 3

(c)   3 : 4

(d)   4 : 3

Q) The distance between two points (A and B) is 110 km. X starts running from point A at a speed of 60 km/h and Y starts running from point B at a speed of 40 km/h at the same time. They meet at a point C, somewhere on the line AB. What is the ratio of AC to BC ?

(a) 3 : 2

(b) 2 : 3

(c) 3 : 4

(d) 4 : 3

Ans: (a)

Q) A man starts from a place P and reaches the place Q in 7 hours. He travels $1/4^{th}$ of the distance at 10 km/hour and the remaining distance at 12 km/hour. The distance, in kilometre, between P and Q is

(a) 72

(b) 80

(c) 90

(d) 70

Q) A man starts from a place P and reaches the place Q in 7 hours. He travels $1/4^{th}$ of the distance at 10 km/hour and the remaining distance at 12 km/hour. The distance, in kilometre, between P and Q is

(a)   72   (b)   80
(c)   90   (d)   70

Ans: (b)

Q) A train travelling at the speed of x km h crossed a 200 m long platform in 30 seconds and overtook a man walking in the same direction at the speed of 6 km/h in 20 seconds. What is the value of x?

(a) 50 (b) 54 (c) 56 (d) 60

Q) A train travelling at the speed of x km h crossed a 200 m long platform in 30 seconds and overtook a man walking in the same direction at the speed of 6 km/h in 20 seconds. What is the value of x?

(a) 50   (b) 54   (c) 56   (d) 60

Ans: (d)

Q) A man starts from B to K, another from K to B at the same time. After passing each other they complete their journeys in $3\frac{1}{3}$ and $4\frac{4}{5}$ hours, respectively. Find the speed of the second man if the speed of the first is 12 km/hr.

(a) 12.5 kmph

(b) 10 kmph

(c) 12.66 kmph

(d) 20 kmph

Q) A man starts from B to K, another from K to B at the same time. After passing each other they complete their journeys in $3\frac{1}{3}$ and $4\frac{4}{5}$ hours, respectively. Find the speed of the second man if the speed of the first is 12 km/hr.

(a) 12.5 kmph
(b) 10 kmph
(c) 12.66 kmph
(d) 20 kmph

Ans: (b)

SSBCrack
EXAMS

Q) A passenger sitting in a train of length 100 m, which is running with speed of 60 km/h passing through two bridges, notices that he crosses the first bridge and the second bridge in time intervals which are in the ratio of 7 : 4 respectively. If the length of first bridge be 280 m, then the length of second bridge is:

(a)   490 m   (b)   220 m
(c)   160 m   (d)   Can't be determined

Q) A passenger sitting in a train of length 100 m, which is running with speed of 60 km/h passing through two bridges, notices that he crosses the first bridge and the second bridge in time intervals which are in the ratio of 7 : 4 respectively. If the length of first bridge be 280 m, then the length of second bridge is:

(a)   490 m
(b)   220 m
(c)   160 m
(d)   Can't be determined

Ans: (c)

Q) A train after travelling 150 km meets with an accident and then proceeds with 3/5 of its former speed and arrives at its destination 8 h late. Had the accident occurred 360 km further, it would have reached the destination 4 h late. What is the total distance travelled by the train?

(a) 840 km

(b) 960 km

(c) 870 km

(d) 1100 km

Q) A train after travelling 150 km meets with an accident and then proceeds with 3/5 of its former speed and arrives at its destination 8 h late. Had the accident occurred 360 km further, it would have reached the destination 4 h late. What is the total distance travelled by the train?

(a)   840 km

(b)   960 km

(c)   870 km

(d)   1100 km

Ans: (c)