Course: RRB MAINS

Subject: Miscellaneous (Age, Speed Time Distance, Train)

Time:15 Minutes
Published Date: 11th October 2020

Solutions

S1. Ans(d)
Sol.
Let present age of Chintu be 5x years
Then present age of Binny=8x years
And present age of Amit=6x years
ATQ
$8x - 5x - (8x - 6x)$=6

$$x = 6$$

Required average=40 years

S2. Ans. (a)
Sol.
Let age of Ravi and Vicky, 4 years ago was 5x years and 6x years respectively
2 years later, age of Ravi=(5x+6) years
Age of Rocky, 2 years later=$\left(\frac{6x+4}{4} \times 5\right) + 2\ years$
ATQ
(5x+6) +$\left(\frac{6x+4}{4} \times 5\right) + 2$=63
x=4
required difference= 4 years

S3. Ans(d)
Sol. Let age of A, B, C & D be a, b, c & d years respectively
ATQ –
a + b = 2c + 12 ------- (i)
a + d = 2c --------- (ii)
Given, $\frac{b+d}{2}$= 50
b + d = 100 -------- (iii)
And, $\frac{a+b+c+d}{4}$ = 50
a + b + c + d = 200 ---------- (iv)
From (i) & (ii) –
b – d = 12 ---------- (v)
From (iii) & (v) –
2b = 112
b = 56 years

d = 44 years
From (i) (iii) & (iv) –
a + b + c + d = 200
c = 48 years
a = 200 − (56 + 48 + 44)
a = 52 years
Required difference between age of A and C = $52 - 48 = 4$ years.

S4. Ans.(a)
Sol. Three year ago, sum of age of Amit, Bittu and Chitu together = 27 × 3 = 81 years
Four years hence, sum of ages of Amit, Bittu and Chitu together = 81 + 7 × 3 = 102 years
Let Four years hence
Amit's age be 7x ⇒Chitu's age be 10x and Bittu's age be 10x–6
ATQ,
7x+10x–6+10x = 102
⇒ 27x = 108 ⇒ x = 4
Four years hence, Amit's age = 7×4 = 28 years
Present age of Amit = 28–4 = 24 years

S5. Ans.(e)
Sol.
Let age of Veer = 4x years
So, age of Ayush will be = 3x years
Age of Veer (4x) = $\frac{40}{2} + 24$ = 44 years
x = 11
Age of Ayush = 3 × 11 = 33 years.
Required difference = 44 – 33 = 11 years.

S6. Ans.(a)
Sol. Total distance covered by Vikash =9+1=10 km.
Time taken by Vikash = 10×6
=60 min
So, time taken by Mohit = 60–4=56 min
Distance covered by Mohit = 9–1
=8 km
Speed of Mohit = $\frac{8}{56}$
=$\frac{1}{7}$ km/min.

S7. Ans.(c)
Sol.

$$\text{Speed of train} = 64 \times \frac{5}{4}$$

$= 80$ km/hr

ATQ—
80T – 64T = 48
16T = 48
T = 3 hours
Speed of Aircraft

$$= \left(144 \times \frac{13}{8}\right)$$
$$= (18 \times 13) \text{ km/hr}$$
$$= 234 \text{ km/hr}$$

$$\text{Required distance} = 234 \times \left(3 - \frac{1}{4}\right)$$
$$= (234 \times 2.75)\text{km}$$
$$= 643.5 \text{ km}$$

S8. Ans.(c)
Sol.
Let total distance from A to B = 'D'
ATQ, Satish cover 20% distance in 6.5 hours So, he can cover 30% distance (M to mid-point of A and B) in
$\frac{6.5}{2} \times 3 = 9.75$ hr.
Time taken by Satish to come back from mid-point to M = 29.25 – 9.75 = 19.5 hr
30% distance covered by Satish in 19.5 hr.
100% distance covered by Satish in $\frac{19.5}{3} \times 10 = 65$ hr

S9. Ans.(a)
Sol.
Let
Sped of pedestrian $= x$ km/h
Speed of cyclist $= y$ km/h
$\therefore 2 \times (x + y) = 40$
$\Rightarrow$ x + y = 20 km/h
According to second condition,
$\frac{40}{x} - \frac{40}{y} = \frac{15}{2}$
Now, going through options we get x = 4 km/hr.

S10. Ans.(d)
Sol.
Distance between P and Q is 150 km.
Now X bus cover 40 km in 1 hour
Y bus cover 60 km in 1st hour
Remaining distance = 50 km

$$Remaining\ t\text{ime to cross each other } = \frac{50}{40 + 50} = \frac{50}{90} = \frac{5}{9} hr$$

$$Distance\ which\ is\ covered\ by\ 'Y'\ in\ \frac{5}{9}hr = 40 \times \frac{5}{9} = \frac{200}{9}km$$

$$Distance\ between\ Q\ and\ the\ point\ where\ buses\ crosses\ each\ other = 60 + \frac{200}{9}$$

$$= 82\frac{2}{9}km$$

S11. Ans.(a)
Sol.
Let speed of train A be 5x km/hr
Then speed of train B=6x km/hr
ATQ—

$$(6x + 5x) \times \frac{5}{18} = \frac{120 + 180}{\frac{60}{11}}$$

x = 18
Required time== $\frac{120+180}{(108-90)\times\frac{5}{18}} = 60\ sec$

S12. Ans(c)
Sol.
Speed of train in m/s = $72 \times \frac{5}{18} = 20$ m/s
ATQ –

$$20 = \frac{X}{t}$$

Or, X = 20t ---------- (i)
Also,
$20 = \frac{X+L}{20}$
X + L = 400
X = 400 – L ---------- (ii)
From (i) & (ii)
20t = 400 – L ---------- (iii)
Only (c) satisfied the equation (iii)

S13. Ans.(b)
Sol.
Let speed of train 'X' = x km/hr
And, speed of train 'Y' = 1.5x km/hr
ATQ,
$2 = \frac{D}{x} - \frac{D}{1.5x}$ ...(i)
And, $\frac{D+160}{8} = x$ ...(ii)
On solving (i) & (ii)
x = 80 kmph

speed of train 'Y' = 120 kmph

S14. Ans(b)
Sol.
Let length of two train is l & 2l respectively
ATQ –

$$(120 - 108) \times \frac{5}{18} = \frac{l+2l}{108}$$

$$\frac{10}{3} = \frac{l}{36}$$

l = 120 m
Length of longer train = $2 \times 120 = 240\ m$
Let length of each compartment be x m
So,

$$120 \times \frac{5}{18} = \frac{120+2\times x+12.5\times x}{10.04}$$

$$\frac{100}{3} = \frac{120 + 14.5x}{14.04}$$

1404 = 360 + 43.5x
43.5 = 1044
x = 24 m
Length of platform = $24 \times 12.5 = 300$ m
New length of longer train = $240 + 5 \times 24 = 360\ m$
Let time taken by longer train = t sec

$$108 \times \frac{5}{18} = \frac{360+300}{t}$$

$$t = \frac{660}{30}$$

t = 22 sec

S15. Ans.(c)
Sol.
Let speed of train P = 4x m/sec
Let speed of Q = 5x m/sec
∴ Length of train P = 4x × 6 = 24x m
Length of train Q = 5x × 4 = 20x m
A/Q,

$$\frac{24x + 480}{4x} = 18$$

$$\Rightarrow x = 10$$

∴ Required time = $\frac{200+480}{50}$ = 13.6 sec