Quiz Date: 9th June 2020

Direction (1-5): Simplify the given questions and find the exact value.

Q1. $(9)^3 \times 6 \div 9 + (7)^3 + 171 = 100 + (?)^3 - 431$
(a) 12
(b) 9
(c) 13
(d) 10
(e) 11

Q2. 45% of $2770 + \frac{5}{4} of\ 1824 = 5 \times ?$
(a) 701.2
(b) 705.3
(c) 709.1
(d) 704.5
(e) 706.3

Q3. $\frac{675}{3^3} + 112 \times 1.5 - 42\%\ of\ 350 = ?$
(a) 42
(b) 48
(c) 44
(d) 40
(e) 46

Q4. $1\frac{1}{3} + 2\frac{1}{6} - 3\frac{1}{9} = \frac{2}{?}$
(a) $4\frac{1}{3}$
(b) $5\frac{1}{3}$
(c) $2\frac{1}{7}$
(d) $5\frac{1}{7}$
(e) $4\frac{1}{3}$

Q5. $[(28 \times 176) \div 16 - 615 \times 16 \div 240] = ? - 11$
(a) 278
(b) 266
(c) 280
(d) 267
(e) 279

Q6. Two cars, an Alto and a Swift, start at the same time in opposite directions from two distinct points P and Q. Starting from P, the Alto reaches Q in 6 hrs 20 minutes and the

Swift starting from Q, reaches P in 4 hrs 45 minutes. What is the speed of the Swift, if the speed of the Alto is 60 Km/h?
(a) 110 Km/h
(b) 100 Km/h
(c) 90 Km/h
(d) 80 Km/h
(e) 70 km/h

Q7. X started from a point A towards point B. After 2 hours Y started from B towards A. By the time X travelled one-fifth of the total distance, Y had also travelled the same. If Y's speed is thrice that of X's speed, find the difference in the times (in hours) taken by X and Y to reach their destinations.
(a) 10
(b) 20
(c) 15
(d) 25
(e) none of these

Q8. Two boys 'A' and 'B' start at the same time to ride from Delhi to Meerut, 60 km away. A travels 4 km an hour slower than B. B reaches Meerut and at once turns back meeting A 12 km from Meerut. The speed of A was
(a) 4 km/hr
(b) 8 km/hr
(c) 12 km/hr
(d) 16 km/hr
(e) 6 km/hr

Q9. A thief sees a jeep at a distance of 250 m, coming towards him at 36 km/h. Thief takes 5 seconds to realize that the police is approaching him by the jeep and started running away from police at 54 km/hr. But police realized after 10 seconds, when the thief starts running away, that he is actually a thief and started chasing at 72 km/hr. What is the total distance covered and total time taken by the police if thief is caught?
(a) 50 s, 1000 m
(b) 65 s, 1150 m
(c) 65 s, 1300 m

(d) 45 s, 1050 m
(e) 60 s, 1200 m

Q10. A motorboat went downstream for 28 km and immediately returned. It took the boat twice as long to make the return trip than the downstream trip. If the speed of the river flow were twice as high, the trip downstream and back would take 672 minutes. Find the speed of the boat in still water and the speed of the river flow.
(a) 9 km/hr, 3 km/hr
(b) 9 km/hr, 6 km/hr
(c) 8 km/hr, 2 km/hr
(d) 12 km/hr, 3 km/hr
(e) None of these

Q11. Two trains pass each other on parallel lines. Each train is 100 meter long. When they are going in the same direction, the faster one takes 60 seconds to pass the other completely. If they are going in opposite directions, they pass each other completely in 10 seconds. Find the speed of the slower train in km/hr.
(a) 30 km/hr
(b) 42 km/hr
(c) 48 km/hr
(d) 60 km/hr
(e) 54 km/hr

Q12. Buses start from a bus terminal with a speed of 20 km/hr at intervals of 10 minutes. What is the speed of a man coming from the opposite direction towards the bus terminal if he meets the buses at intervals of 8 minutes?
(a) 8 km/hr
(b) 10 km/hr
(c) 7 km/hr
(d) 5 km/hr
(e)12 km/hr

Q13. A train covers certain distance between two places at a uniform speed. If the train moved 10 kmph faster, it would take 2 hours less, and if the train were slower by 10 kmph, it would take 3 hours more than the scheduled time. Find the distance covered by the train.
(a) 300 km
(b) 600 km
(c) 800 km
(d)1200 km
(e)1000 km

Q14. A motorboat travelling at a certain speed, can cover 25 km upstream and 39 km downstream in 8 hours. At the same speed, it can travel 35 km upstream and 52 km downstream in 11 hours. The speed of the stream is:
(a) 2 kmph

(b) 3 kmph
(c) 4 kmph
(d) 5 kmph
(e) 8 kmph

Q15. Sandeep after travelling 50 km meets a swami who suggests him to go slower. He then proceeds at ¾ of his former speed and arrives at his destination 35 minutes late. Had the meeting occurred 24 km further Sandeep would have reached its destination 25 minutes late. Find the initial speed of Sandeep.
(a) 48 km/hr
(b) 36 km/hr
(c) 54 km/hr
(d) 58 km/hr
(e) 60 km/hr

Solutions

S1. Ans.(e)
Sol.
$(9)^{3-1} \times 6 + 343 + 171 = -331 + (?)^3$
$1000 + 331 = (?)^3$
$? = 11$

S2. Ans.(b)
Sol.
$\frac{45 \times 2770}{100} + \frac{5}{4} \times 1824 = 5 \times ?$
$? = 705.3$

S3. Ans.(e)
Sol.
$25 + 168 - \frac{42 \times 350}{100} = ?$
$? = 46$

S4. Ans.(d)

Sol.

$(1+2-3)+\left(\frac{1}{3}+\frac{1}{6}-\frac{1}{9}\right)=\frac{2}{?}$

$\frac{7}{18}=\frac{2}{?}$

$?=\frac{36}{7}=5\frac{1}{7}$

S5. Ans.(a)

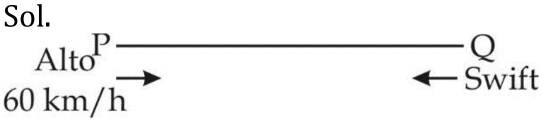
Sol.

308 – 41 = ? – 11

? = 278

S6. Ans.(d)

Sol.



Distance PQ $= 60 \times 6\frac{1}{3} = 380\ km$

Speed of Swift $= \frac{380\times4}{19} = 80$ km/h

S7. Ans.(a)

Sol. Let the speed of X be x kmph. Distance travelled by X in 2 hours = 2x km.

Suppose x takes t hours to travel $\frac{1^{th}}{5}$ of the distance AB.

Y would take (t–2) hours to travel $\frac{1^{th}}{5}$ of the distance AB.

As Y's speed is thrice that of X's speed.

$\frac{t-2}{t}=\frac{1}{3}$

t = 3

$\frac{1^{th}}{5}$ of the distance AB = 3x km.

AB =15x km

Time taken by x to cover 15x km = $\frac{15x}{x} = 15$ hours

Time taken by Y to cover 15x km = $\frac{15x}{3x} = 5\ hours.$

∴ Difference in the times = 10 hours.

S8. Ans.(b)

Sol.

Let speed of A was x km/hr.

Thus, speed of B = x+4 km/hr

So, by the time they met, B has travelled (60 + 12) km while A has travelled (60 – 12) km.

Or, B has travelled 24 km more than A.

Since B has a margin of 4 km per hour i.e. he travelled 4 km more every hour, so it need him 6 hours to travel 24 km more than A.

$\therefore$ required speed of A $= \frac{60-12}{6} = 8$ km/hr

S9. Ans.(b)
Sol. Initial speed of police = 10 m/s
Increased speed of police= 20 m/s
Speed of thief = 15 m/s
Initial difference between thief and police = 250 m
After 5 seconds difference between thief and police = 250 - (5 × 10) = 200 m
After 10 seconds more, the difference between thief and police = 200 + (5 × 10) = 250 m.
Now, the time required by police to catch the thief=250/5=50s
Distance travelled = 50 × 20 = 1000 m
Total time = 50 + 15 = 65 s
Total distance = 1000 + (15 × 10) = 1150 m

S10. Ans.(a)
Sol.
Let speed boat =x km/h
Let speed of stream = y km/h
Condition I
$$2 \times \frac{28}{x+y} = \frac{28}{x-y} \Rightarrow \frac{x}{y} = \frac{3}{1}$$
Condition II
$$\frac{28}{(3y+2y)} + \frac{28}{(3y-2y)} = \frac{672}{60}$$
$$\Rightarrow \frac{28}{5y} + \frac{28}{y} = \frac{672}{72}$$
$$\Rightarrow \frac{28 + 28 \times 5}{5y} = \frac{672}{72} \Rightarrow y = 3 \text{ km/h}$$
$\therefore$ Speed of boat in still water = 9 km/h

S11. Ans.(a)
Sol.
Let speed of faster train = x km/h
Let speed of slower train = y km/h
When both move in same direction $= \frac{60}{60 \times 60} = \frac{200}{(x-y) \times 1000}$
$x - y = 12 \ldots \ldots \ldots \ldots \ldots (i)$

When both move in opposite direction = $\frac{10}{60\times60} = \frac{200}{(x+y)\times1000}$
x + y = 72 … … … … … … … (ii)
Solving (i) and (ii)
x = 42 km/h
y = 30 km/h

S12. Ans.(d)
Sol. Let x is the speed of man in kmph
Distance covered in 10 minutes 20 kmph = distance covered in 8 minutes at (20 + x)
$\Rightarrow 20 \times \frac{10}{60} = \frac{8}{60}(20 + x)$
$\Rightarrow 200 = 160 + 8x \Rightarrow 8x = 40$
$\Rightarrow x = \frac{40}{8} = 5\ kmph$

S13. Ans.(b)
Sol. Let speed of train = S kmph
Scheduled time = T hours
∴ (S + 10) (T - 2) = ST
–2S + 10T = 20
And, (S - 10) (T + 3) = ST
3S – 10T = 30
S = 50 kmph
T = 12 hours
Then the distance = S × T = 50 × 12
= 600 km

S14. Ans.(c)
Sol. Let the speed of a boat in still water and stream be x and y kmph respectively.
Speed of boat along stream = (x + y) kmph
And speed of boat against stream = (x – y) kmph
According to the question,
$\frac{25}{x-y} + \frac{39}{x+y} = 8$ ………..(i)
And $\frac{35}{x-y} + \frac{52}{x+y} = 11$ ……….(ii)
On solving equation (i) and (ii), we get
x = 9 and y = 4
Hence, speed of stream = 4 kmph

S15. Ans.(a)
Sol.
Let original speed of Sandeep is= 4x km/h
Let reduced speed of Sandeep is = 3x km/h
according to question
$$\frac{24}{3x} - \frac{24}{4x} = \frac{(35-25)}{60}$$
$x = 12$

original speed =12×4=48km/h