

Aptitude :: Races and Games

Ques1: In a 100 m race, A can give B 10 m and C 28 m. In the same race B can give C:

- A. 18 m
- B. 20 m
- C. 27 m
- D. 9 m

Answer: Option B

Explanation:

$$A : B = 100 : 90.$$

$$A : C = 100 : 72.$$

$$B : C = \frac{B}{A} \times \frac{A}{C} = \frac{90}{100} \times \frac{100}{72} = \frac{90}{72}.$$

When B runs 90 m, C runs 72 m.

$$\text{When B runs 100 m, C runs } \left(\frac{72}{90} \times 100 \right) \text{ m} = 80 \text{ m.}$$

∴ B can give C 20 m.

Ques2: A and B take part in 100 m race. A runs at 5 kmph. A gives B a start of 8 m and still beats him by 8 seconds. The speed of B is:

- A. 5.15 kmph
- B. 4.14 kmph
- C. 4.25 kmph
- D. 4.4 kmph

Answer: Option B

Explanation:

$$\text{A's speed} = \left(5 \times \frac{5}{18} \right) \text{ m/sec} = \frac{25}{18} \text{ m/sec.}$$

$$\text{Time taken by A to cover 100 m} = \left(100 \times \frac{18}{25} \right) \text{ sec} = 72 \text{ sec.}$$

∴ Time taken by B to cover 92 m = (72 + 8) = 80 sec.

$$\therefore \text{B's speed} = \left(\frac{92}{80} \times \frac{18}{5} \right) \text{ kmph} = 4.14 \text{ kmph.}$$

Ques3: In a 500 m race, the ratio of the speeds of two contestants A and B is 3 : 4. A has a start of 140 m. Then, A wins by:

- A. 60 m
- B. 40 m
- C. 20 m
- D. 10 m

Answer: Option C

Explanation:

To reach the winning post A will have to cover a distance of $(500 - 140)m$, i.e., 360 m.

While A covers 3 m, B covers 4 m.

While A covers 360 m, B covers $\left(\frac{4}{3} \times 360\right)_m = 480$ m.

Thus, when A reaches the winning post, B covers 480 m and therefore remains 20 m behind.

∴ A wins by 20 m.

Ques4: In a 100 m race, A beats B by 10 m and C by 13 m. In a race of 180 m, B will beat C by:

- A. 5.4 m
- B. 4.5 m
- C. 5 m
- D. 6 m

Answer: Option D

Explanation:

A : B = 100 : 90.

A : C = 100 : 87.

$$\frac{B}{C} = \frac{B}{A} \times \frac{A}{C} = \frac{90}{100} \times \frac{100}{87} = \frac{30}{29}$$

When B runs 30 m, C runs 29 m.

When B runs 180 m, C runs $\left(\frac{29}{30} \times 180\right)_m = 174$ m.

∴ B beats C by $(180 - 174) m = 6$ m.

Ques5: At a game of billiards, A can give B 15 points in 60 and A can give C to 20 points in 60. How many points can B give C in a game of 90?

- A. 30 points
- B. 20 points
- C. 10 points
- D. 12 points

Answer: Option C

Explanation:

$$A : B = 60 : 45.$$

$$A : C = 60 : 40.$$

$$\therefore \frac{B}{C} = \left(\frac{B}{A} \times \frac{A}{C} \right) = \left(\frac{45}{60} \times \frac{60}{40} \right) = \frac{45}{40} = \frac{90}{80} = 90 : 80.$$

\therefore B can give C 10 points in a game of 90.

Ques6: In a race of 200 m, A can beat B by 31 m and C by 18 m. In a race of 350 m, C will beat B by:

- A. 22.75 m
- B. 25 m
- C. 19.5 m
- D. 7m

Answer: Option B

Explanation:

$$A : B = 200 : 169.$$

$$A : C = 200 : 182.$$

$$\frac{C}{B} = \left(\frac{C}{A} \times \frac{A}{B} \right) = \left(\frac{182}{200} \times \frac{200}{169} \right) = 182 : 169.$$

When C covers 182 m, B covers 169 m.

$$\text{When C covers 350 m, B covers } \left(\frac{169}{182} \times 350 \right) \text{ m} = 325 \text{ m.}$$

Therefore, C beats B by $(350 - 325) \text{ m} = 25 \text{ m}$.

Ques7: In 100 m race, A covers the distance in 36 seconds and B in 45 seconds. In this race A beats B by:

- A. 20 m
- B. 25 m
- C. 22.5 m
- D. 9 m

Answer: Option A

Explanation:

$$\text{Distance covered by B in 9 sec.} = \left(\frac{100}{45} \times 9 \right) \text{ m} = 20 \text{ m.}$$

\therefore A beats B by 20 metres.

Ques8: In a game of 100 points, A can give B 20 points and C 28 points. Then, B can give C:

- A. 8 points
- B. 10 points
- C. 14 points
- D. 40 points

Answer: Option B

Explanation:

A : B = 100 : 80.

A : C = 100 : 72.

$$\therefore \frac{B}{C} = \left(\frac{B}{A} \times \frac{A}{C} \right) = \left(\frac{80}{100} \times \frac{100}{72} \right) = \frac{10}{9} = \frac{100}{90} = 100 : 90.$$

\therefore B can give C 10 points.

Ques9: In a 200 metres race A beats B by 35 m or 7 seconds. A's time over the course is:

- A. 40 sec
- B. 47 sec
- C. 33 sec
- D. None of these

Answer: Option C

Explanation:

B runs 35 m in 7 sec.

$$\therefore \text{B covers 200 m in } \left(\frac{7}{35} \times 200 \right) = 40 \text{ sec.}$$

B's time over the course = 40 sec.

\therefore A's time over the course (40 - 7) sec = 33 sec.

Ques10: A can run 22.5 m while B runs 25 m. In a kilometre race B beats A by:

- A. 100 m
- B. 110 m
- C. 25 m
- D. 50 m

Answer: Option A

Explanation:

When B runs 25 m, A runs $\frac{45}{2}$ m.

When B runs 1000 m, A runs $\left(\frac{45}{25} \times \frac{1}{1000} \right) = 900$ m.

∴ B beats A by 100 m.

Ques11: In a 300 m race A beats B by 22.5 m or 6 seconds. B's time over the course is:

- A. 86 sec
- B. 80 sec
- C. 76 sec
- D. None of these

Answer: Option B

Explanation:

B runs $\frac{45}{2}$ m in 6 sec.

∴ B covers 300 m in $\left(6 \times \frac{2}{45} \times 300\right)_{\text{sec}} = 80 \text{ sec.}$

Ques12: A runs 1 1/2 times as fast as B. If A gives B a start of 80 m, how far must the winning post be so that A and B might reach it at the same time?

- A. 200 m
- B. 300 m
- C. 270 m
- D. 160 m

Answer: Option A

Explanation:

Ratio of the speeds of A and B = $\frac{5}{3} : 1 = 5 : 3.$

Thus, in race of 5 m, A gains 2 m over B.

2 m are gained by A in a race of 5 m.

80 m will be gained by A in race of $\left(\frac{5}{2} \times 80\right)_{\text{m}} = 200 \text{ m.}$

∴ Winning post is 200 m away from the starting point.

Ques13: In a 100 m race, A can beat B by 25 m and B can beat C by 4 m. In the same race, A can beat C by:

- A. 21 m
- B. 26 m
- C. 28 m
- D. 29 m

Answer: Option C

Explanation:

$$A : B = 100 : 75$$

$$B : C = 100 : 96.$$

$$\therefore A : C = \left(\frac{A}{B} \times \frac{B}{C} \right) = \left(\frac{100}{75} \times \frac{100}{96} \right) = \frac{100}{72} = 100 : 72.$$

$$\therefore A \text{ beats } C \text{ by } (100 - 72) \text{ m} = 28 \text{ m}.$$

