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| Two trains running in opposite directions cross a man standing on the platform in 27 seconds and 17 seconds respectively and they cross each other in 23 seconds. The ratio of their speeds is: |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 1 : 3 | | [**B.**](javascript:%20void%200;) | 3 : 2 | | [**C.**](javascript:%20void%200;) | 3 : 4 | | [**D.**](javascript:%20void%200;) | None of these | |

**Answer:** Option **B**

**Explanation:**

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

Then, length of the first train = 27*x* metres,

and length of the second train = 17*y* metres.

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| https://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif | 27*x* + 17*y* | = 23 |
| *x*+ *y* |

https://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 27*x* + 17*y* = 23*x* + 23*y*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 4*x* = 6*y*  https://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif | *x* | = | 3 | . |
| *y* | 2 |
|  |  |  |  |  |
| |  | | --- | | Two trains are moving in opposite directions @ 60 km/hr and 90 km/hr. Their lengths are 1.10 km and 0.9 km respectively. The time taken by the slower train to cross the faster train in seconds is: | | |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 36 | | [**B.**](javascript:%20void%200;) | 45 | | [**C.**](javascript:%20void%200;) | 48 | | [**D.**](javascript:%20void%200;) | 49 |   **Answer:** Option **C**  **Explanation:**  Relative speed = (60+ 90) km/hr   |  |  |  |  |  | | --- | --- | --- | --- | --- | | = | https://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 150 x | 5 | https://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gifm/sec | | 18 |  |  |  |  |  | | --- | --- | --- | --- | | = | https://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 125 | https://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gifm/sec. | | 3 |   Distance covered = (1.10 + 0.9) km = 2 km = 2000 m.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Required time = | https://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 2000 x | 3 | https://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gifsec = 48 sec. | | 125 | | |  |  |  |  |

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| A train travelling at a speed of 75 mph enters a tunnel 31/2 miles long. The train is 1/4 mile long. How long does it take for the train to pass through the tunnel from the moment the front enters to the moment the rear emerges? |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 2.5 min | | [**B.**](javascript:%20void%200;) | 3 min | | [**C.**](javascript:%20void%200;) | 3.2 min | | [**D.**](javascript:%20void%200;) | 3.5 min |   **Answer:** Option **B**  **Explanation:**   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Total distance covered | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | = | ( | 7 | + | 1 | ( | miles | | 2 | 4 | | |  | |  |  |  | | --- | --- | --- | | = | 15 | miles. | | 4 | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Therefore Time taken | |  |  |  |  |  | | --- | --- | --- | --- | --- | | = | ( | 15 | ( | hrs | | 4 x 75 | | |  | |  |  |  | | --- | --- | --- | | = | 1 | hrs | | 20 | | |  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | = | ( | 1 | x 60 | ( | min. | | 20 | | |  | = 3 min. | |

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| A 300 metre long train crosses a platform in 39 seconds while it crosses a signal pole in 18 seconds. What is the length of the platform? |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 320 m | | [**B.**](javascript:%20void%200;) | 350 m | | [**C.**](javascript:%20void%200;) | 650 m | | [**D.**](javascript:%20void%200;) | Data inadequate |   **Answer:** Option **B**  **Explanation:**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Speed = | ( | 300 | ( | m/sec = | 50 | m/sec. | | 18 | 3 |   Let the length of the platform be *x* metres.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Then, | ( | *x* + 300 | ( | = | 50 | | 39 | 3 |   => 3(*x* + 300) = 1950  => *x* = 350 m. |

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| A train moves past a telegraph post and a bridge 264 m long in 8 seconds and 20 seconds respectively. What is the speed of the train? |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 69.5 km/hr | | [**B.**](javascript:%20void%200;) | 70 km/hr | | [**C.**](javascript:%20void%200;) | 79 km/hr | | [**D.**](javascript:%20void%200;) | 79.2 km/hr |   **Answer:** Option **D**  **Explanation:**  Let the length of the train be *x* metres and its speed by *y* m/sec.   |  |  |  | | --- | --- | --- | | Then, | *x* | = 8     =>     *x* = 8*y* | | *y* |  |  |  |  | | --- | --- | --- | | Now, | *x* + 264 | = *y* | | 20 |   => 8*y* + 264 = 20*y*  => *y* = 22.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Therefore Speed = 22 m/sec = | ( | 22 x | 18 | ( | km/hr = 79.2 km/hr. | | 5 | | |  | | --- | | A train 108 m long moving at a speed of 50 km/hr crosses a train 112 m long coming from opposite direction in 6 seconds. The speed of the second train is: | | |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 48 km/hr | | [**B.**](javascript:%20void%200;) | 54 km/hr | | [**C.**](javascript:%20void%200;) | 66 km/hr | | [**D.**](javascript:%20void%200;) | 82 km/hr |   **Answer:** Option **D**  **Explanation:**  Let the speed of the second train be *x* km/hr.   |  |  | | --- | --- | | Relative speed | = (*x* + 50) km/hr | |  | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | = |  | (*x* + 50) x | 5 |  | m/sec | | 18 | | |  | |  |  |  |  |  | | --- | --- | --- | --- | --- | | = |  | 250 + 5*x* |  | m/sec. | | 18 | |   Distance covered = (108 + 112) = 220 m.   |  |  |  | | --- | --- | --- | | Therefore | 220 | = 6 | | |  |  |  | | --- | --- | --- | | ( | 250 + 5*x* | ( | | 18 | |   => 250 + 5*x* = 660  => *x* = 82 km/hr. | |  |  |  |  |  | |

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| Two, trains, one from Howrah to Patna and the other from Patna to Howrah, start simultaneously. After they meet, the trains reach their destinations after 9 hours and 16 hours respectively. The ratio of their speeds is: |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | 2 : 3 | | [**B.**](javascript:%20void%200;) | 4 : 3 | | [**C.**](javascript:%20void%200;) | 6 : 7 | | [**D.**](javascript:%20void%200;) | 9 : 16 |   **Answer:** Option **B**  **Explanation:**  Let us name the trains as A and B. Then,  (A's speed) : (B's speed) = b : a = 16 : 9 = 4 : 3. |

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| |  |  | | --- | --- | | What is the length of a running train crossing another 180 metre long train running in the opposite direction? | | | I. | The relative speed of the two trains was 150 kmph. | | II. | The trains took 9 seconds to cross each other. | |
| |  |  | | --- | --- | | [**A.**](javascript:%20void%200;) | I alone sufficient while II alone not sufficient to answer | | [**B.**](javascript:%20void%200;) | II alone sufficient while I alone not sufficient to answer | | [**C.**](javascript:%20void%200;) | Either I or II alone sufficient to answer | | [**D.**](javascript:%20void%200;) | Both I and II are not sufficient to answer | | [**E.**](javascript:%20void%200;) | Both I and II are necessary to answer |   **Answer:** Option **E**  **Explanation:**  Let the two trains of length *a* metres and *b* metres be moving in opposite directions at *u* m/s and *v* m/s.   |  |  |  | | --- | --- | --- | | Time taken to cross each other = | (*a* + *b*) | sec. | | (*u* + *v*) |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Now, *b* = 180, *u* + *v* = | https://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 150 x | 5 | https://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gifm/sec | = | 125 | m/sec. | | 18 | 3 |  |  |  | | --- | --- | | https://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 9 = | *a* + 180 | | (125/3) |   https://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *a* = (375 - 180) = 195 m. |