

GRE Prep

Rate Time and Sequence



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1. Two Cars travel in opposite directions starting from the same point. One car travels at a rate of 40 mph, and the other car travels at a rate 54 mph. How long will it take for the two cars to be 188 miles apart?



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2. Adam travels the first $\frac{2}{3}$ rd of the distance from his home to football ground on bicycle and remaining on foot. What is the ratio of his speed on bicycle to his speed on foot if he takes twice as long on foot as on bicycle?



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3. The Earth travels around the Sun at a speed of approximately 18.5 miles per second. This approximate speed is how many miles per hour?
- A. 1,080
 - B. 1,160
 - C. 64,800
 - D. 66,600
 - E. 3,996,000



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4. On a certain day, Amanda bikes up a hill at the rate of 5 miles per hour and back down the hill, using the same route, at a rate of 15 miles per hour. What was Amanda's average speed, in miles per hour, on this biking trip?
- A. 7.5
 - B. 8.75
 - C. 10
 - D. 11.25
 - E. 13



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5. Jan lives x floors above the ground floor of a high-rise building. It takes her 30 seconds per floor to walk down the steps and 2 seconds per floor to ride the elevator. If it takes Jan the same amount of time to walk down the steps to the ground floor as to wait for the elevator for 7 minutes and ride down, then x equals
- A. 4
 - B. 7
 - C. 14
 - D. 15
 - E. 16



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6. A club decided to build a cabin. The job can be done by 3 skilled workmen in 20 days or by 5 of the boys in 30 days. How many days will the job take if all work together?
- A. 5
 - B. 10
 - C. 12
 - D. $12\frac{2}{3}$
 - E. 14



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7. A small factory with 3 machines has a job of stamping out a number of pan covers. The newest machine can do the job in 3 days, another machine can do it in 4 days, and the third machine can do it in 6 days. How many days will the factory take to do the job using all three machines?



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8. The 7th and 21st terms of an Arithmetic Progression are 6 and - 22 respectively. What is the 26th term of the series?



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9. A series of numbers 2, 22, 222 ... What is the hundreds place of the sum of the first 10 terms of the series?



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10. General term of a series is given as $t_k = \frac{1}{k} - \frac{1}{k+1}$. What is the sum of the first 100 terms of this series?

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11. John and Sarah drove from City A to City B using the same route. John drove at an average speed of 60 km/hr for the first half of the distance and then increased his speed to 80 km/hr for the second half of the distance. Sarah also drives the same distance but drove at a constant speed of 70 km/hr for the entire trip.

Quantity A

John's average speed for the entire route

Quantity B

Sarah's average speed for the entire route



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12. Working together, A and B can complete a work in 15 days, B and C can complete the same work in 10 days and A and C can complete that work in 12 days.

Quantity A

The number of days taken
by A, B, and C working
together

Quantity B

9



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13. John takes x minutes to type 2700 words. He types at the rate of 1800 words per hour.

Quantity A

x

Quantity B

90 minutes



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14. X = Sum of first 20 even natural numbers.

Y = Sum of first 20 odd natural numbers.

Quantity A

$X+20$

Quantity B

Y



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15. The first five terms of the sequence are 0, 5, 5, 0, - 5. In the series, any term after the second term can be defined by $t_{n+2} = t_{n+1} - t_n$.

Quantity A

Sum of first 50 terms

Quantity B

0



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16.

Quantity A

$$\left(1 - \frac{1}{2}\right)^2 \times \left(1 - \frac{1}{3}\right)^2 \times \left(1 - \frac{1}{4}\right)^2 \dots \dots \left(1 - \frac{1}{10}\right)^2$$

Quantity B

$$\frac{1}{121}$$



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17.

Quantity A

$$\frac{1}{81} + \frac{1}{82} + \frac{1}{83} + \cdots + \frac{1}{100}$$

Quantity B

$$\frac{1}{5}$$



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18. Nine identical machines, each working at the same constant rate, can stitch 27 jerseys in 4 minutes. How many minutes would it take 4 such machines to stitch 60 jerseys?
- A. 8
 - B. 12
 - C. 16
 - D. 18
 - E. 20



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19. One robot, working independently at a constant rate, can assemble a doghouse in 12 minutes. What is the maximum number of complete doghouses that can be assembled by 10 such identical robots, each working on separate doghouses at the same rate for 2.5 hours?
- A. 20
 - B. 25
 - C. 120
 - D. 125
 - E. 150



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20. The sequence S is defined by $S_n = S_{n-1} + S_{n-2} + S_{n-3} - 5$ for each integer $n \geq 4$. If $S_1 = 4$, $S_2 = 0$, and $S_3 = -4$, what is the value of S_6 ?
- A. -2
 - B. -12
 - C. -16
 - D. -20
 - E. -24





Thank you