

Interview Brain Teasers

Q. You need to transport 200 bananas from city A to city B by truck. The truck can hold 100 bananas. City A and city B are 100 miles apart. Unfortunately, the truck driver eats bananas at a rate of 1 banana per mile whenever bananas are in the truck. If you can drop bananas at the side of the road and pick them up later, what is the maximum number of bananas that can be delivered to city B?

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Q. A $6 \times 6 \times 6$ cube is comprised of $1 \times 1 \times 1$ cubes. If all of the outer faces of the larger cube are painted, how many of the smaller cubes will have paint on them?

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Q. Suppose we have a set of five numbers. Their average is 20. If the range of the set is 10, what is the maximum possible value of the largest number in the set?

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Q. You are invited to a welcoming party with 25 other team members. Each of the team members shakes hands with you to welcome you. Some other team members shake hands as well. If you don't know the total number of handshakes, can you say with certainty that there are at least two people present who shook hands with exactly the same number of people?

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Q. $\frac{d}{dx}(x^x) =$

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Q. $\int e^x \sin x \, dx =$

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$$\text{Q. } \frac{d}{dK} \left(\int_0^K (K - s)f(s) \, ds \right) =$$

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Q. What is the expected number of flips to obtain two consecutive heads?

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Q. Two players A and B take turns tossing a fair coin. If there is a head followed by a tail, the game ends and person who tossed the tail wins. What is the probability that A wins the game?

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Q. Suppose $x = 1 + \frac{1}{1 + \frac{1}{\ddots}}$. Find x .

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Q. How many trailing zeros does $100!$ have?

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Q. What is the 100th digit to the right of the decimal point in the decimal representation of $(1 + \sqrt{2})^{3000}$?