

CAT 2022 – Quantitative Ability

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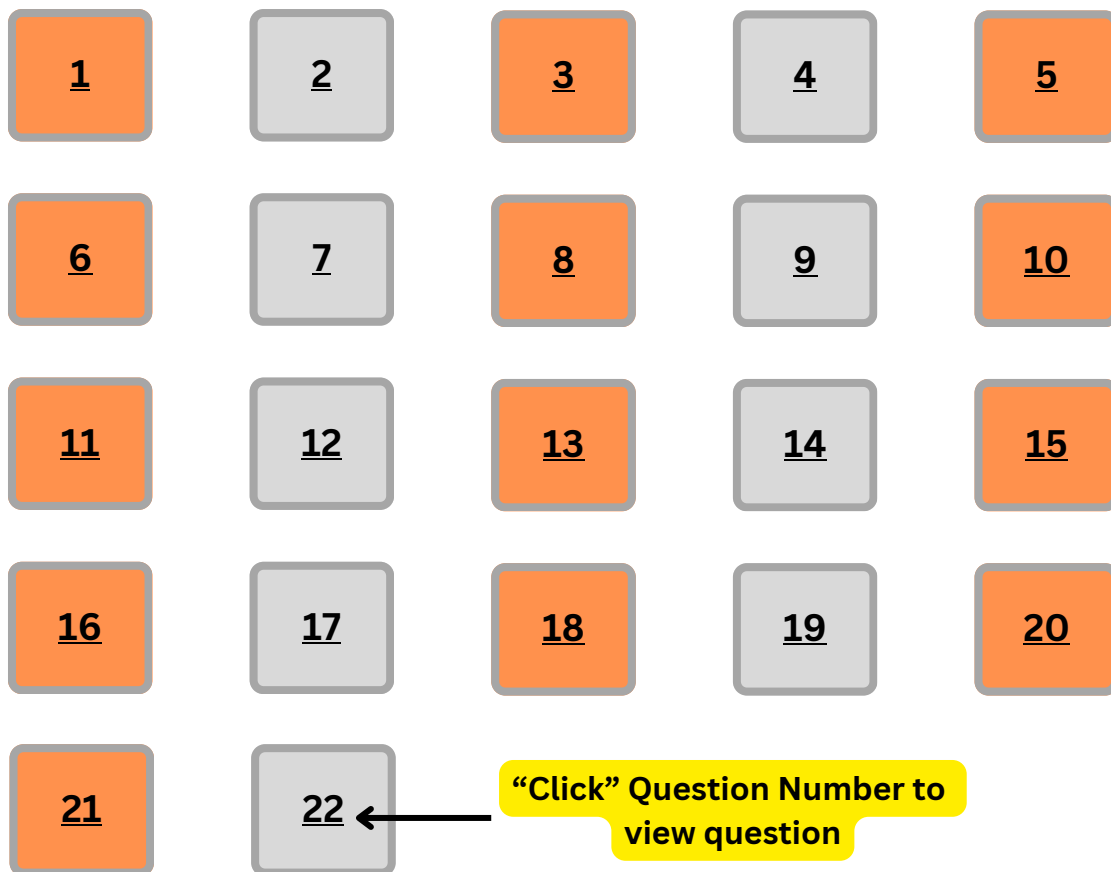
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CAT 2022 Slot - 3 – Quantitative Ability

Suppose k is any integer such that the equation $2x^2+kx+5=0$ has no real roots and the equation $x^2+(k-5)x+1=0$ has two distinct real roots for x . Then, the number of possible values of k is

- A. 7
- B. 8
- C. 9
- D. 13

Correct Answer: **C. 9**

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

The minimum possible value of $\frac{x^2 - 6x + 10}{3 - x}$, for $x < 3$, is

- A. $\frac{1}{2}$
- B. $-\frac{1}{2}$
- C. **2**
- D. -2

Correct Answer: **C. 2**

Explanation

Video Solution

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CAT 2022 Slot - 3 – Quantitative Ability

Bob can finish a job in 40 days, if he works alone. Alex is twice as fast as Bob and thrice as fast as Cole in the same job. Suppose Alex and Bob work together on the first day, Bob and Cole work together on the second day, Cole and Alex work together on the third day, and then, they continue the work by repeating this three-day roster, with Alex and Bob working together on the fourth day, and so on. Then, the total number of days Alex would have worked when the job gets finished, is

Correct Answer: 11

[Explanation](#)

[Video Solution](#)

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CAT 2022 Slot - 3 – Quantitative Ability

A glass contains 500 cc of milk and a cup contains 500 cc of water. From the glass, 150 cc of milk is transferred to the cup and mixed thoroughly. Next, 150 cc of this mixture is transferred from the cup to the glass. Now, the amount of water in the glass and the amount of milk in the cup are in the ratio

- A. 3 : 10
- B. 10 : 3
- C. 1 : 1
- D. 10 : 13

Correct Answer: **C. 1:1**

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

In an examination, the average marks of students in sections A and B are 32 and 60, respectively. The number of students in section A is 10 less than that in section B. If the average marks of all the students across both the sections combined is an integer, then the difference between the maximum and minimum possible number of students in section A is

Correct Answer: 63

[Explanation](#)

[Video Solution](#)

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CAT 2022 Slot - 3 – Quantitative Ability

Let r be a real number and $f(x) = \begin{cases} 2x - r & \text{if } x \geq r \\ r & \text{if } x < r \end{cases}$.

Then, the equation $f(x) = f(f(x))$ holds for all real values of x where

- A. $x \leq r$
- B. $x \geq r$
- C. $x > r$
- D. $x \neq r$

Correct Answer: **A.** $x \leq r$

Explanation

Video Solution

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CAT 2022 Slot - 3 – Quantitative Ability

Suppose the medians BD and CE of a triangle ABC intersect at a point O . If area of triangle ABC is 108 sq. cm., then, the area of the triangle EOD , in sq. cm., is

Correct Answer: 9

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

The arithmetic mean of all the distinct numbers that can be obtained by rearranging the digits in 1421, including itself, is

- A. 2442
- B. 2222
- C. 3333
- C. 2592

Correct Answer: B. 2222

[Explanation](#)

[Video Solution](#)

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CAT 2022 Slot - 3 – Quantitative Ability

Nitu has an initial capital of ₹20,000. Out of this, she invests ₹8,000 at 5.5% in bank A, ₹5,000 at 5.6% in bank B and the remaining amount at $x\%$ in bank C, each rate being simple interest per annum. Her combined annual interest income from these investments is equal to 5% of the initial capital. If she had invested her entire initial capital in bank C alone, then her annual interest income, in rupees, would have been

- A. 900
- B. 700
- C. 1000
- D. 800

Correct Answer: **D. 800**

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

Two cars travel from different locations at constant speeds. To meet each other after starting at the same time, they take 1.5 hours if they travel towards each other, but 10.5 hours if they travel in the same direction. If the speed of the slower car is 60 km/hr, then the distance traveled, in km, by the slower car when it meets the other car while traveling towards each other, is

- A. 150
- B. 100
- C. 90
- D. 120

Correct Answer: **C. 90**

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

$$\text{If } \left(\sqrt{\frac{7}{5}}\right)^{3x-y} = \frac{875}{2401} \text{ and } \left(\frac{4a}{b}\right)^{6x-y} = \left(\frac{2a}{b}\right)^{y-6x},$$

for all non-zero real values of a and b , then the value of $x + y$ is

Correct Answer: **14**

Explanation

Video Solution

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CAT 2022 Slot - 3 – Quantitative Ability

Moody takes 30 seconds to finish riding an escalator if he walks on it at his normal speed in the same direction. He takes 20 seconds to finish riding the escalator if he walks at twice his normal speed in the same direction. If Moody decides to stand still on the escalator, then the time, in seconds, needed to finish riding the escalator is

Correct Answer: 60

[Explanation](#)

[Video Solution](#)

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CAT 2022 Slot - 3 – Quantitative Ability

Consider six distinct natural numbers such that the average of the two smallest numbers is 14, and the average of the two largest numbers is 28. Then, the maximum possible value of the average of these six numbers is

- A. 22.5
- B. 23.5
- C. 24
- D. 23

Correct Answer: **A. 22.5**

Explanation

Video Solution

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CAT 2022 Slot - 3 – Quantitative Ability

If $(3 + 2\sqrt{2})$ is a root of the equation $ax^2 + bx + c = 0$,
and $(4 + 2\sqrt{3})$ is a root of the equation $ay^2 + my + n = 0$,
where a, b, c, m and n are integers, then the value of $\left(\frac{b}{m} + \frac{c-2b}{n}\right)$ is

- A. 3
- B. 1
- C. 4
- D. 0

Correct Answer: **C. 4**

Explanation

Video Solution

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CAT 2022 Slot - 3 – Quantitative Ability

If $c = \frac{16x}{y} + \frac{49y}{x}$ for some non-zero real numbers x and y , then c cannot take the value

- A. -70
- B. 60
- C. -50
- D. -60

Correct Answer: **C. -50**

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

A group of N people worked on a project. They finished 35% of the project by working 7 hours a day for 10 days. Thereafter, 10 people left the group and the remaining people finished the rest of the project in 14 days by working 10 hours a day. Then the value of N is

- A. 23
- B. 140
- C. 36
- D. 150

Correct Answer: B. 140

Explanation

Video Solution

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CAT 2022 Slot - 3 – Quantitative Ability

The average of all 3-digit terms in the arithmetic progression 38, 55, 72, ..., is

Correct Answer: 548

[Explanation](#)

[Video Solution](#)

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CAT 2022 Slot - 3 – Quantitative Ability

In a triangle ABC, $AB=AC=8\text{cm}$. A circle drawn with BC as diameter passes through A. Another circle drawn with center at A passes through B and C. Then the area, in sq. cm, of the overlapping region between the two circles is

- A. $16(\pi - 1)$
- B. $32(\pi - 1)$
- C. 32π
- D. 16π

Correct Answer: **B. $32(\pi - 1)$**

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

A school has less than 5000 students and if the students are divided equally into teams of either 9 or 10 or 12 or 25 each, exactly 4 are always left out. However, if they are divided into teams of 11 each, no one is left out. The maximum number of teams of 12 each that can be formed out of the students in the school is

Correct Answer: 150

[Explanation](#)

[Video Solution](#)

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CAT 2022 Slot - 3 – Quantitative Ability

A donation box can receive only cheques of ₹100, ₹250, and ₹500. On one good day, the donation box was found to contain exactly 100 cheques amounting to a total sum of ₹15250. Then, the maximum possible number of cheques of ₹500 that the donation box may have contained, is

Correct Answer: 12

[Explanation](#)

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CAT 2022 Slot - 3 – Quantitative Ability

Two ships are approaching a port along straight routes at constant speeds. Initially, the two ships and the port formed an equilateral triangle with sides of length 24 km. When the slower ship travelled 8 km, the triangle formed by the new positions of the two ships and the port became right-angled. When the faster ship reaches the port, the distance, in km, between the other ship and the port will be

- A. 8
- B. 12
- C. 6
- D. 4

Correct Answer: **B. 12**

Explanation

Video Solution

CAT 2022 Slot - 3 – Quantitative Ability

The lengths of all four sides of a quadrilateral are integer valued. If three of its sides are of length 1 cm, 2 cm and 4 cm, then the total number of possible lengths of the fourth side is

- A. 6
- B. 4
- C. 5
- D. 3

Correct Answer: C. 5

[Explanation](#)

[Video Solution](#)