CAT Exam 2024 Important Quant Questions with Solutions

Q. 1: ABC is an isosceles triangle with sides AB=AC=5. D is a point in between B and C such that BD=2 and DC=4.5. Find the length of AD.

1. $2\sqrt{2}$
2. 3
3. 4
4. $2\sqrt{3}$

Topic: triangles

Level: Moderate

Q. 2: Let $P = \frac{1}{10^2+1} + \frac{2}{10^2+2} + \frac{3}{10^2+3} + ... + \frac{10}{10^2+10}$ then which of the following is the best approximate value of P.

1. 0.42
2. 0.52
3. 0.57
4. 0.62

Topic: series

Level: Difficult

Q. 3: How many rectangles can be formed by taking the four vertices of 18-sided regular polygon.

Topic: permutation and combination

Level: Difficult

Q. 4: Find the smallest number which has 6 distinct factors

Topic: factors

Level: Moderate

Q. 5: If Rohit drives at 20kmph, he reaches office at 3 pm. If he drives at 30kmph, he reaches office at 11 am. At what speed he should drive if he wishes to reach office at 1 pm.

1. 25 kmph
2. 24 kmph
3. 27 kmph
4. None of these

Topic: speed time and distance

Level: Easy

Q. 6: A five digit number N has all digits different and contains digits 1,3,4,5, and 6 only. If N is the smallest possible number such that it is divisible by 11, then what is the tens place digit of N.

1. 1
2. 3
3. 4
4. 5

Topic: divisibility

Level: Moderate

Q. 7: If α and $-\alpha$ are the roots of the equation $2x^3 - 5x^2 - 8x + n = 0$. Find the value of n?

Topic: equations

Level: Easy

Q. 8: The bases of a trapezoid have lengths 10 and 15. A segment parallel to the bases passes through the point of intersection of the diagonals and extends from one side to the other. Find the length of the segment

1. 5
2. $\sqrt{150}$
3. $\frac{25}{\sqrt{2}}$
4. 12

Topic: quadrilaterals

Level: Difficult

Q. 9: The value of a fraction represented in base n is $0.\overline{111}$ while in base 2n it takes the simpler form 0.2n. What is n?

Topic: base system

Level: Moderate

Q. 10: If Gopal and Harish can complete a work together in 20 days, and Gopal alone can do the same work in 32 days. When both work together their efficiencies reduce by 20% compare to the efficiency when they would have worked alone. Find the number of days Harish alone takes to complete the same work.

Topic: work and time

Level: Easy

Q. 11: In a survey done across 115 people about their favorite TV Serials: Sathiya, Kumkum, and Balika.

The following results were found

A) 80 prefer Sathiya, 60 prefer Kumkum and 50 prefer Balika.

B) 30 prefer both Sathiya and Kumkum, 40 prefer both Kumkum and Balika. 25 prefer Sathiya and Balika

Find the maximum number of people who could prefer all three serials.

1. 25
2. 50
3. 15
4. 20

Topic: set theory

Level: Moderate

Q. 12: In how many different ways can we change the sign * with + or -, such that the following equation is true? 1*2*3*4*5*6*7*8*9*10*11 = 42?

1. 6
2. 7
3. 8
4. 10

Topic: properties of numbers

Level: Difficult

Q. 13: Nishant, Rakesh, Brijesh, and Rohit bought a house for Rs.40 lakhs. The contribution of Nishant is 3/5thof the contribution of Rakesh, Brijesh, and Rohit taken together. The contribution of Rakesh is 2/3rd of the contribution of Brijesh and Rohit

taken together. Brijesh and Rohit contributed equal amount. What is the ratio of their respective contributions?

1. 6:4:3:1
2. 8:4:2:2
3. 6:4:3:3
4. 5:4:3:4

Topic: ratio and proportion

Level: Easy

Q. 14: The area of a triangle is 48 and the two sides of the triangle are 8 and 15. Let x be the length of largest possible third side. What is the value of [x], where [x] is a greatest integer less than equal to x.

1. 12
2. 17
3. 19
4. None of these

Topic: triangles

Level: Difficult

Q. 15: Find sum of all the real roots of the equation $\sqrt[3]{x}+\sqrt[3]{20-x}=2$

Topic: equations

Level: Moderate

Q. 16: Let $N=1!\times 2!\times 3!\times .....\times 99!\times 100!$, and if $\frac{N}{p!}$ is a perfect square for some positive integer $p\leq 100$, then find the value of p.

Topic: factorials

Level: Moderate

Q. 17: If $x^2 + y^2 = 1$, find the maximum value of $x^2 + 4xy - y^2$

1. 1
2. $\sqrt{2}$
3. $\sqrt{5}$
4. 4

Topic: maxima minima

Level: Difficult

Q. 18: The compound interest on a certain amount for two years is Rs. 291.2 and the simple interest on the same amount is Rs. 280. If the rate of interest is same in both the cases, find the Principal amount

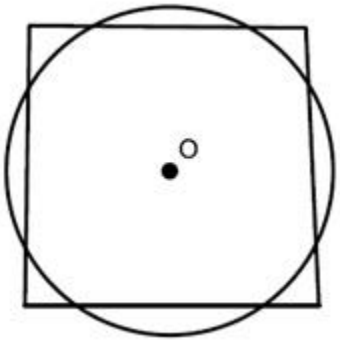
1. 1200
2. 1400
3. 1700
4. 1750

Topic: sici

Level: Easy

Q. 19: In the diagram given below, the circle and the square have the same center O and equal areas. The circle has radius 1 and intersects one side of the square at P and

Q. What is the length of PQ?



1. 1
2. 3/2
3. $\sqrt{4-\pi}$
4. $\sqrt{\pi-1}$

Topic: circles

Level: Easy

Q. 20: What is the remainder when $x^{276}+12$ is divided by x^2+x+1 given that the remainder is a positive integer?

Topic: remainders

Level: Difficult

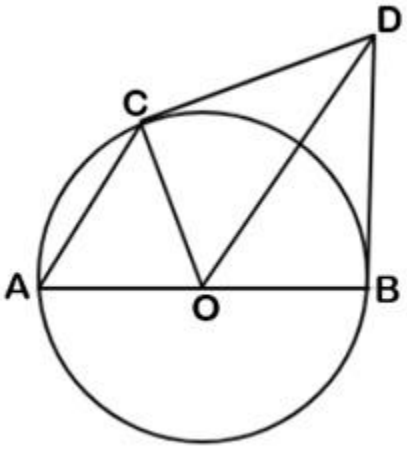
Q. 21: A, B, C, D, and E are five friends. The sums of the weights of each group of four of them are 132, 138, 113, 131, and 126. What is the positive difference of the weights of the heaviest and lightest among them?

1. 25
2. 26
3. 27
4. None of these

Topic: averages

Level: Easy

Q. 22: In the figure given below, O is the center and AB is the diameter of the circle of radius 15. From point D, two tangents DC and DB are drawn to the circle. If AC is parallel to OD and AC+OD=43, find the length of CD given CD is positive integer



Topic: circles

Level: Difficult

Q. 23: If $x+y+z=2, x^2+y^2+z^2=6, and\ x^3+y^3+z^3=8$, find the value of $x^4+y^4+z^4$?

1. $8\sqrt{5}$
2. 18
3. $18\sqrt{3}$
4. 16

Topic: basic algebra

Level: Moderate

Q. 24: Two friends Ankit and Brijesh are approaching towards each other, each one at 1 kmph. Ankit is walking with a dog, which can run at speed of 9 kmph. The dog leaves Ankit and runs towards Brijesh when Ankit and Brijesh are 10 km apart. After

reaching Brijesh the dog immediately runs back to Ankit. Find the distance travelled by Ankit between the time the dog leaves him and comes back to him.

1. 1.6 km
2. 1.8 km
3. 1.2 km
4. 1.4 km

Topic: speed time and distance

Level: Moderate

Q. 25: The lines $x = \frac{1}{4}y + a$ and $y = \frac{1}{4}x + b$ intersect at the point $(1, 2)$. What is a + b?

1. 0
2. $\frac{3}{4}$
3. 1
4. $\frac{9}{4}$

Topic: coordinate geometry

Level: Easy

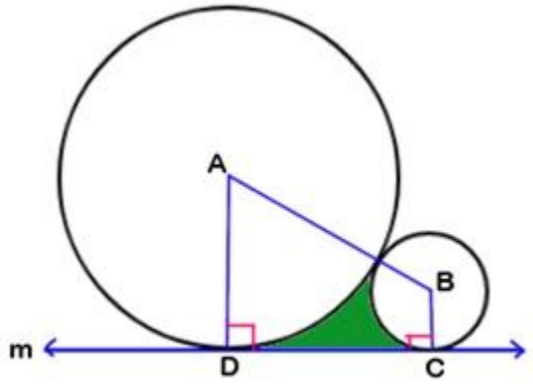
Q. 26: For any three positive real numbers x, y and z,
$9\left(25x^2 + y^2\right) + 25\left(z^2 - 3zx\right) = 15y\left(3x + z\right)$ Then :

1. x, y and z are in G.P.
2. y, z and x are in G.P.
3. y, z and x are in A.P.
4. x, y and z are in A.P.

Topic: progressions

Level: Difficult

Q. 27: Circles with center A and B are externally tangent to each other and to line m. If the radii of circle A and B are 3 and 1 respectively, Find the area of the shaded region.



1. $4\sqrt{3}-\frac{7\pi}{3}$
2. $3\sqrt{3}-\frac{11\pi}{7}$
3. $2\sqrt{3}-\frac{\pi}{3}$
4. $4\sqrt{3}-\frac{11\pi}{6}$

Topic: area

Level: Difficult

Q. 28: 13 married couples attended a wedding ceremony, each woman gave a pack of chocolates to everyone except her spouse, and no exchange of gifts took place between men. How many gifts were exchanged among these people?

1. 78
2. 312
3. 468
4. 624

Topic: permutation and combination

Level: Easy

Q. 29: Let $f(x)=ax^2+bx+c$ and $f(x+y)=f(x)+f(y)+xy$. Given a+b+c=3 , find the value of $f(10)$

Topic: functions

Level: Moderate

Q. 30: Let $x=\log_4 9+\log_9 28$ then which of the following is true:

1. 2<x<3
2. 3<x<4
3. 4<x<5
4. None of these

Topic: logarithm

Level: Moderate

Answer Keys:

Q.No.	Answer	Q.No.	Answer	Q.No.	Answer
1	**3**	11	**4**	21	**1**
2	**2**	12	**2**	22	**20**
3	**36**	13	**3**	23	**2**
4	**12**	14	**4**	24	**2**
5	**2**	15	**20**	25	**4**
6	**2**	16	**50**	26	**3**
7	**20**	17	**3**	27	**4**
8	**4**	18	**4**	28	**2**
9	**5**	19	**3**	29	**75**
10	**32**	20	**13**	30	**2**