

LearnTheta - CAT 2024 Quant Mock Test 3

Duration: 40 Mins

Q.1 A line 'm' is tangent to a circle in P(5,1). The circle's centre is C(4,2). What is the slope of the line?

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

Q.2 The present worth of Rs. 338 due in next 2 years at 4% per annum inflation is

- A. Rs. 312.5
- B. Rs. 300
- C. Rs. 280
- D. Rs 250.5

Q.3 A fruit seller has found that the price of apples, x rupees per kg, where $50 \leq x \leq 200$, influences the quantity of apples 'n' he sells, following the linear equation $n(x)=1000-5x$. Customers will purchase all his apples at a price of Rs 50/kg or lower. At a price of Rs 200/kg or higher, he won't be able to sell any. Assuming any unsold apples have no value, what price should the seller set between Rs 50 and Rs 200 per kilogram to maximize his revenue?

Q.4 If $x^2 + y^2 = 4y + 6x - 13$, then $(x + y)$ is

- A. 2
- B. 3
- C. 5
- D. 10

Q.5 The average age of two boys and their father is greater than the average age of those two boys and their mother by 3 yr. The average age of the four is 19 yr. If the average age of the two boys is $11\frac{1}{2}$, then find the age of the father and mother.

- A. 37 yr and 28 yr
- B. 47 yr and 38 yr
- C. 50 yr and 41 yr
- D. 35 yr and 32 yr

Q.6 Two trains running in opposite directions cross a man standing on the platform in 27 seconds and 17 seconds respectively . If they cross each other in 23 seconds, what is the ratio of their speeds?

- A. 3:2
- B. 3:1
- C. 2:1
- D. 4:3

Q.7 From a square piece of material, the largest circle is carved out. Then, from this circle, the largest possible square is cut out. What is the area of this final square?

- A. 75% of the of the original square
- B. 50% of the size of the original square
- C. 75% of the size of the circle
- D. 25% of the size of the original square

Q.8 Let p, q, r be real numbers such that $p + q + r = 6$, $p^2 + q^2 + r^2 = 14$, and $p^3 + q^3 + r^3 = 36$. Find value of pqr

- A. 2
- B. 6
- C. 9
- D. 12

Q.9 A construction company undertakes to complete a project in 130 days. Company employs 150 workers for 25 days and they complete $\frac{1}{4}$ of the work . Company then reduces the number of workers to 100, who work for 60 days, after which there are 10 days of holidays. How many workers must be employed for the remaining period to finish the work?

- A. 20
- B. 30
- C. 40
- D. 50

Q.10 How many positive integer values of m exist such that $m^2 + 1$ is divisible by $m + 1$

- A. 1
- B. 3

Learn(θ)

- C. 5
- D. 8

Q.11 From a container of wine, a thief has stolen 15 liters of wine and replaced it with the same quantity of water. He again repeated the same process. Thus in three attempts the ratio of wine and water became 343:169. The initial amount of wine in the container was:

- A. 75
- B. 100
- C. 120
- D. 150

Q.12 Solve for x, if $4^{\frac{x+y}{y}} = 3$; and $\log_3(x - y) + \log_3(x + y) = 1$

- A. 1
- B. 2
- C. 3
- D. 4

Q.13 Amar and Akbar invested in the ratio of 3 : 5 in the business. They decided that at the end of the year 20% profit was to be given to the NGO as a donation. Out of the remaining, 75% was to be reinvested and the rest of the profit was to be divided as interest on their capitals. If the difference in their share is Rs 1200. Find the total profit?

- A. 18000
- B. 21000
- C. 24000
- D. 30000

Q.14 How many integer values satisfy the inequality $|(x + 1)/(x - 2)| < 5$

- A. 1
- B. 8
- C. 9
- D. Infinite

Q.15 The ratio of the area of an equilateral triangle and that of its circumcircle is

- A. $2\sqrt{3} : 2\pi$
- B. $4 : \pi$

Learn(θ)

- C. $3\sqrt{3} : 4\pi$
- D. $7\sqrt{3} : 2\pi$

Q.16 What is the sum of the roots of the equation $3x^3 - 16x^2 + 23x - 6 = 0$

- A. 2
- B. $16/3$
- C. $1/3$
- D. 3

Q.17 A machinery costs a certain factory 600,000. It depreciates 15% in the first year, 13.5 % the next year, 12% the third year, and so on. What will be its value at the end of 10 years, all percentages applying to the original cost?

- A. 2,00,000
- B. 1,05,000
- C. 4,05,000
- D. 6,50,000

Q.18 Find sum of all the roots satisfying $\frac{y^{2002} + 4y^{2001}}{4y^{2000}} = 2449.25$

- A. 2
- B. 4
- C. -4
- D. 8

Q.19 Two clocks are synchronized at 11 am on Monday. One clock loses 3 min while the other gains 2 min every hour. By how many minutes do the two clocks differ on Monday 5 pm?

- A. 15 min
- B. 20 min
- C. 25 min
- D. 30 min

Q.20 Excluding the stoppages, the speed of a taxi is 64 kmph and including the stoppages, the speed of the taxi is 48 kmph. For how many minutes does the truck stop per hour?

- A. 10 min
- B. 12 min
- C. 15 min
- D. 20 min

Q.21 What would you expect the nominal rate of interest to be if the real rate is 5% and the expected inflation rate is 3%?

- A. 7%
- B. 8%
- C. 8.15%
- D. 8.5%

Q.22 Bacteria in a culture are doubling according to the equation $N = N_0 3^{t/7}$, given 't' is duration in hours. If there are 100000 bacteria at a certain time, how many hours later will the number of bacteria be 24300000?

- A. 5 hours
- B. 25 hours
- C. 32 hours
- D. 35 hours

Answers

1. A
2. A
3. 100
4. C
5. A
6. A
7. B
8. B
9. D
10. A
11. C
12. C
13. C
14. D
15. C
16. A
17. B
18. C
19. B
20. C
21. C
22. D

Learn(θ)

Please use the following table to calculate a tentative percentile based on your score. For every correct response, 3 points are awarded. Incorrect answers to multiple-choice questions result in a deduction of 1 point, whereas incorrect answers to non-multiple-choice questions do not affect the score.

Target Percentile	Score
99	30
90	20
80	15
70	12