

LearnTheta - CAT 2024 Quant Mock Test 1**Duration: 40 Mins**

Q.1 If $(x + y)^2 - 2(x + y) = 80$ and $xy = 16$ then which of the following can be value of $3x - 19y$

- A. -18
- B. -20
- C. -14
- D. -16

Q.2 Two clocks are synchronised correctly at 1:00am on a day. One clock loses 3 minutes in an hour and the other clock gains the same time in an hour. After how many days will both clocks display the correct time again?

- A. 5
- B. 10
- C. 15
- D. 30

Q.3 In a company, three products – AlphaGadget, BetaWidget, and GammaDevice – initially have sales in the ratio of 5:6:7, respectively. In the first year, AlphaGadget's sales increased by 20%, BetaWidget's sales increase by 25%, and GammaDevice's sales increase by 20%. In the second year, sales of BetaWidget and GammaDevice increased by 26% and 25% respectively. Also BetaWidget's sales become equal to the average sales of the three products. What is the percentage increase in AlphaGadget's sales in the second year?"

- A. 20%
- B. 25%
- C. 26%
- D. 40%

Q.4 If $(3a - 2b) : (2a + 3b) = 5 : 6$, then one of the values of $\left(\frac{\sqrt[3]{a+\sqrt[3]{b}}}{\sqrt[3]{a-\sqrt[3]{b}}}\right)^2$

- A. 1/5
- B. 5
- C. 1/25
- D. 25

Q.5 The diluted wine contains only 8 liters of wine and the rest is water. How many liters of this mixture should be substituted with pure wine to achieve a new blend with a 30% wine concentration, given that there were originally 32 liters of water in it?

- A. 4
- B. 5
- C. 6
- D. 8

Q.6 Find two nonnegative numbers that add up to 9 and the product of one number and the square of the other number is a maximum. Mention the smaller number as your answer

Q. 7 After two consecutive discounts, a book's price drops to Rs. 576. Originally, it was marked up by 80% from a cost price of Rs. 500.. What is the new profit percentage if instead of two successive discounts the markup price was further increased successively two times by the same percentage?

- A. 59.2%
- B. 159.2%
- C. 259.2%
- D. Can't be determined

Q.8 For how many values of p , $p^2 + 20p + 12$ is a perfect square given p is a positive integer?

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

Q.9 Solve for a

$$2 + \log\sqrt{1+a} + 3\log\sqrt{1-a} = \log\sqrt{1-a^2}$$

- A. 99/100
- B. 9/100
- C. 9/10
- D. 1/9

Q.10 A truck departed from town A heading towards town B. After covering 300 km, it halted for 30 minutes because of a roadblock. By then, it had completed 60% of its journey. Once it resumed, the driver increased the speed by 20 km/h and arrived in town B on time. What was the truck's initial speed?

- A. 60 km/ hr
- B. 70km/hr
- C. 80 km/ hr
- D. 90 km/ hr

Q.11 What is the sum of the roots of the equation: $y^2 - |2y - 3| - 4 = 0$

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

Q. 12 The ratio of efficiency of Amar to Chandan is 5:3. The number of days taken to complete a task by Bhuvan to Chandan is 2:3. If Amar and Chandan each do the work alone, Amar finishes 6 days earlier than Chandan. Bhuvan and Chandan begin the work together but stop after 2 days. How long will it take for Amar to complete the remaining work?

- A. 4
- B. 5
- C. 6
- D. 7

Q.13 Find $a^2 + b^2$ given that $x^4 + x^3 + 8x^2 + ax + b$ is exactly divisible by $x^2 + 1$

- A. 36
- B. 40
- C. 50
- D. 64

Q. 14 How far is the distance from Alok's home to his office if he arrives 20 minutes late when traveling at 10 km/hr, and 15 minutes early when going at 15 km/hr?

- A. 14
- B. 15
- C. 16

D. 17.5

Q.15 Find sum of the roots satisfying $\frac{5}{2-x} + \frac{x-5}{x+2} + \frac{3x+8}{x^2-4} = 0$

A. 0

B. -2

C. 4

D. 8

Q. 16 The difference between compound interest and simple interest on a sum for two years at 8% per annum, where the interest is compounded annually is Rs.16. If the interest were compounded half yearly , what would be the approximate difference between the two types of interests?

A. 24.64

B. 22.24

C. 20.84

D. 16

Q. 17 Find the equation of the circle which passes through the points A(-2,2) and B(5,-5) and has the line $3x-4y=35$ as a tangent at the point B(5,-5).

Q. 18 If the front wheel of a cart has a circumference of 30 feet and the rear wheel has a circumference of 36 feet, how far has the cart traveled when the front wheel completes five additional rotations compared to the back wheel?

A. 750 ft

B. 800 ft

C. 850 ft

D. 900 ft

Q. 19 Which point is the reflection of the point (-7, 5) over the line $y = -x$?

A. (7, -5)

B. (-5, 7)

C. (5, -7)

D. (-7, -5)

Q. 20 What is the sum of all 3 digit numbers that leave a remainder of '2' when divided by 3?

- A. 897
- B. 1,64,850
- C. 1,64,749
- D. 1,49,700

Q. 21 x , 17 , $3x - y^2 - 2$ and $3x + y^2 - 30$ are four consecutive terms of an increasing arithmetic sequence. The sum of the four numbers is divisible by:

- A. 2
- B. 3
- C. 5
- D. 7

Q. 22 Two bikers set out on a long journey. The first biker starts from city X and travels north on a certain day and covers 10 km on the first day and on subsequent days, he travels 20 km more than the previous day. After 3 days, a second biker sets out from city X in the same direction as the first biker and on his first day he travels 120 km and on subsequent days he travels 10 km more than the previous day. On which day will the second traveller be ahead of the first?

- A. 5th
- B. 6th
- C. 7th
- D. 8th

Answers

1. C
2. D
3. D
4. D
5. B
6. 3
7. B
8. B
9. A
10. C
11. D
12. C
13. C
14. D
15. D
16. A
17. $(x - 2)^2 + (y + 1)^2 = 25$
18. D
19. B
20. B
21. A
22. B

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	27
90	18
80	12
70	9