MATHS

BOOKS - INDEPENDENTLY PUBLISHED MATHS (ENGLISH)

MODEL TEST 5

Mcqs

1. $x^{2/3} + x^{4/3} =$

A. $x^{2/3}$

B. $x^{8/9}$

C. x

D. $x^{2/3}\left(x^{2/3}+1\right)$

Answer: D

Watch Video Solution

2. In three dimensions , what is the set of all points for which x = 0 ?

A. the origin

B. a line parallel to the x-axis

C. the yz-plane

D. a plane containing the x-axis

Answer: C

Watch Video Solution

3. Expressed with positive exponents only , $\frac{ab^{-1}}{a^{-1}-b^{-1}}$ is equivalent to

A. $\frac{a^2}{a-b}$

B. $\frac{a^2}{a-1}$

C. $\frac{b-a}{ab}$

D. $\frac{a^2}{b-a}$

Answer: D

Watch Video Solution

4. If f(x) = $\sqrt[3]{x}$ and g(x) = $x^3 + 8$, find $(f \circ g)$ (3) .

A. 3.3

B. 5

C. 11

D. 35

Answer: A

Watch Video Solution

5. $x >$ sin x for

A. all $x > 0$

B. all $x < 0$

C. all x for which $x \neq 0$

D. all x

Answer: A

Watch Video Solution

6. The sum of the zero of f(x) $= 3x^2 - 5$ is

A. 3.3

B. 1.8

C. 1.7

D. 0

Answer: D

Watch Video Solution

7. The intersection of a plane with a right circular cylinder could be which of the following ?

I. A circle

II . Parallel lines

III. Intersecting lines

A. I only

B. II only

C. III only

D. I and II only

Answer: D

 Watch Video Solution

8. Two dice are tossed . What is the probability that the sum is 5 ?

A. $\frac{1}{11}$

B. $\frac{1}{9}$

C. $\frac{1}{6}$

D. $\frac{1}{4}$

Answer: B

Watch Video Solution

9. The graph of f(x) = $\frac{10}{x^2 - 10x + 25}$ has a vertical asymptote at x =

A. 0 only

B. 5 only

C. 10 only

D. 0 and 5 only

Answer: B

Watch Video Solution

10. When P (x) = $2x^3 - 6x^2 + Kx$ is divided by x + 2 , the remainder is -10 . Then K =

A. -30

B. -15

C. -6

D. -1

Answer: B

Watch Video Solution

11. Of the following lists of numbers , which has the largest standard deviation ?

A. 2,7,15

B. 3,7,14

C. 5,7,12

D. 10,11,12

Answer: A

Watch Video Solution

12. If f(x) is a linear function and f(2) = 1 and f(4) = -2 , then f(x) =

A. $-\frac{3}{2}x+4$

B. $\frac{3}{2}x-2$

C. $-\frac{3}{2}x+2$

D. $\frac{3}{2}x-4$

Answer: A

Watch Video Solution

13. The length of the radius of a circle is one-half the length of an arc of the circle . What is the radian measure of the central angle that intercepts that arc ?

A. 60°

B. 120°

C. 1^R

D. 2^R

Answer: D

Watch Video Solution

14. If f(x) = $2^x + 1$, then $f^{-1}(7)$ =

A. 2.4

B. 2.6

C. 2.8

D. 3

Answer: B

Watch Video Solution

15. Find all values of x that satisfy the determinant equation $\begin{vmatrix} 2x & 1 \\ x & x \end{vmatrix}$ = 3

A. -1

B. -1 or 1.5

C. 1.5

D. -1.5

Answer: B

View Text Solution

16. The 71st term of 30,27, 24, 21, ... , is

A. 5325

B. 240

C. 180

D. -180

Answer: D

Watch Video Solution

17. If $0 < x < \frac{\pi}{2}$ and tan 5x = 3 , to the nearest tenth , what is the value of tan x ?

A. 0.5

B. 0.4

C. 0.3

D. 0.2

Answer: C

Watch Video Solution

18. If $4.05^p = 5.25^q$, what is the value of $\frac{p}{q}$?

A. -0.11

B. 0.11

C. 1.19

D. 1.30

Answer: C

View Text Solution

19. A cylinder has a base radius of 2 and a height of 9 . To the nearest whole number , by how much does the lateral area exceed the sum of the areas of the two bases ?

A. 101

B. 96

C. 88

D. 81

Answer: C

Watch Video Solution

20. If $\cos 67^\circ = \tan x^\circ$, then x =

A. 0.4

B. 6.8

C. 7.8

D. 21

Answer: D

Watch Video Solution

21. P(x) = $x^3 + 18x - 30$ has a zero in the interval

A. $(0, 0.5)$

B. $(0.5, 1)$

C. $(1, 1.5)$

D. $(1.5, 2)$

Answer: C

Watch Video Solution

22. The lengths of the sides of a triangle are 23, 32 , and 37 . To the nearest degree , what is the value of

the largest angle ?

A. 71°

B. 83°

C. 122°

D. 128°

Answer: B

Watch Video Solution

23. If f(x) = $\frac{3}{x-2}$ and g(x) = $\sqrt{x+1}$, find the domain of $f \circ g$.

A. $x \geq -1$

B. $x \neq 2$

C. $x \geq -1, x \neq 2$

D. $x \geq -1, x \neq 3$

Answer: D

Watch Video Solution

24. The overall average grade of a math course is based on homework (10 %) , quizzes (40 %) , and tests (50 %) . Ted has a 90 average for howework , 81

for quizzes , and 85 for tests . What is his overall average ?

A. 83

B. 84

C. 85

D. 86

Answer: B

Watch Video Solution

25. If $\sqrt{y} = 3.216$, then $\sqrt{10y} =$

A. 321.6

B. 32.16

C. 10.17

D. 5.67

Answer: C

Watch Video Solution

26. What is the domain of the function

f(x) log $\sqrt{2x^2 - 15}$?

A. $-7.5 < x < 7.5$

B. $x < -7.5$ or $x > 7.5$

C. $x < -2.7$ or $x > 2.7$

D. $x < -3.2$ or $x > 3.2$

Answer: C

Watch Video Solution

27. A magazine has 1,200,000 subscribers , of whom 400,000 are women and 800,000 are men . Twenty percent of the women and 60 percent of the men read the advertisements in the magazine . What is

the probability that a randomly selected subscriber reads the advertisements ?

A. 0.30

B. 0.36

C. 0.40

D. 0.47

Answer: D

Watch Video Solution

28. Let S be the sum of the first n terms of the arithmetic sequence 3, 7, 11, ..., and let T be the sum

of the first n terms of the arithmetic sequence 8 , 10 , 12 ,.... For $n > 1$, S = T for

A. no value of n

B. one value of n

C. two values of n

D. three values of n

Answer: B

 Watch Video Solution

29. On the interval $\left[-\frac{\pi}{4}, \frac{\pi}{4}\right]$, the function $f(x) = \sqrt{1 + \sin^2 x}$ has a maximum value of

A. 0.78

B. 1

C. 1.1

D. 1.2

Answer: D

Watch Video Solution

30. A point has rectangular coordinates $(3,4)$. The polar coordinates are $(5, \theta)$. What is the value of θ ?

A. 30°

B. 37°

C. 51°

D. 53°

Answer: D

Watch Video Solution

31. If f(x) = $x^2 - 4$, for what real number values of x will f(f(x))= 0 ?

A. 2.4

B. ± 2.4

C. 2 or 6

D. ± 1.4 or ± 2.4

Answer: D

Watch Video Solution

32. If f(x) = x log x and g(x) = 10^x , then g(f(2)) =

A. 24

B. 17

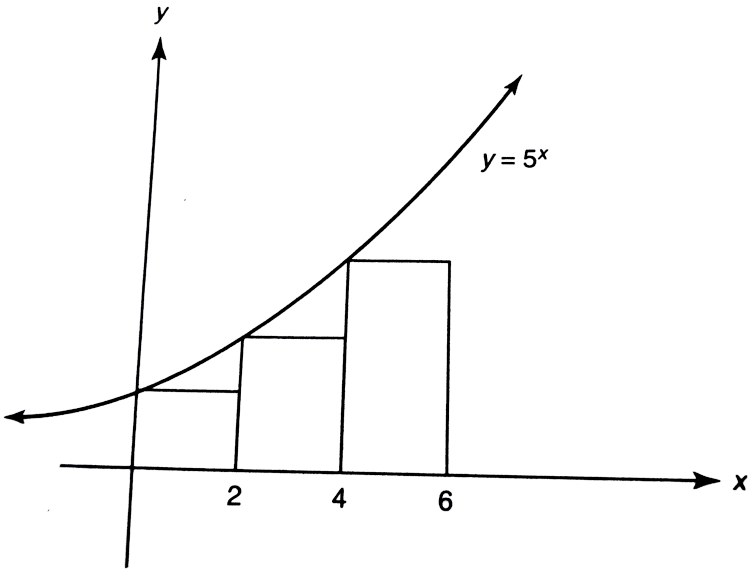
C. 4

D. 2

Answer: C

Watch Video Solution

33. If f(x) = $x^{\sqrt{x}}$, then $f\left(\sqrt{2}\right)$ =



A. 1.4

B. 1.5

C. 1.6

D. 2.0

Answer: B

Watch Video Solution

34. The figure above shows the graph of 5^x . What is the sum of the areas of the rectangle ?

A. 32550

B. 16225

C. 2604

D. 651

Answer: D

Watch Video Solution

35. (p,q) is called a lattice point if p and q are both integers . How many lattice points lie in the area strictly between the two curves $x^2 + y^2 = 9$ and $x^2 + y^2 - 6x + 5 = 0$?

A. 0

B. 1

C. 2

D. 3

Answer: D

View Text Solution

36. If $9^x = \sqrt{3}$ and $2^{x+y} = 32$, then y =

A. $\frac{1}{2}$

B. $\frac{3}{4}$

C. $\frac{5}{2}$

D. $\frac{19}{4}$

Answer: D

Watch Video Solution

37. For all real numbers x , f(2x) = $x^2 - x + 3$. An expression for f(x) in terms of x is

A. $2x^2 - 2x + 3$

B. $4x^2 - 2x + 3$

C. $\frac{x^2}{4} - \frac{x}{2} + 3$

D. $\frac{x^2}{2} - \frac{x}{2} + 3$

Answer: C

Watch Video Solution

38. For what value (s) of k is $x^2 - kx + k$ divisible by x - k ?

A. only 0

B. only 0 or $-\frac{1}{2}$

C. only 1

D. any value of k

Answer: A

Watch Video Solution

39. If the graphs of $x^2 = 4(y + 9)$ and $x + ky = 6$ intersect on the x-axis , then k =

A. 0

B. 6

C. -6

D. any real number

Answer: D

Watch Video Solution

40. The length of the major axis of the ellipse $\frac{(x-3)^2}{16}+\frac{(y+2)^2}{25}=1$ is

A. 3

B. 4

C. 6

D. 10

Answer: D

Watch Video Solution

41. If

$$f_n = \begin{cases} \frac{f_{n-1}}{2} & \text{when } f_n - 1 \text{is an even number} \\ 3 \cdot f_{n-1} + 1 & \text{when } f_{n-1} \text{ is an odd number} \end{cases}$$

and $f_1 = 3$, then $f_5 =$

A. 1

B. 2

C. 4

D. 8

Answer: D

Watch Video Solution

42. How many different rearrangements of the letters in the word CONTEST start with the two vowels ?

A. 120

B. 60

C. 10

D. 5

Answer: A

Watch Video Solution

43. Which of the following translations of the graph of $y = x^2$ would result in the graph of $y = x^2 - 6x + k$, where k is a constant greater than 10 ?

A. left 6 units and up k units

B. left 3 units and up k + 9 units

C. right 3 units and up k + 9 units

D. right 3 units and up $k - 9$ units

Answer: D

Watch Video Solution

44. How many positive integers are there in the solution set of $\frac{x}{x-2} > 5$?

A. 0

B. 2

C. 4

D. 5

Answer: A

Watch Video Solution

45. During the year 1995 the price of ABC Company stock increased by 125% and during the year 1996 the price of stock increased by 80% . Over the period from January 1 , 1995 , through December 31 , 1996 by what percentage did the price of ABC Company stock rise ?

A. 103

B. 205

C. 305

D. 405

Answer: C

Watch Video Solution

46. If $x_0 = 3$ and $x_{n+1} = x_n\sqrt{x_n + 1}$, then $x_3 =$

A. 15.9

B. 31.7

C. 44.9

D. 65.2

Answer: D

Watch Video Solution

47. When the smaller root of the equation $3x^2 + 4x - 1 = 0$ is subtracted from the larger root , the result is

A. -1.3

B. 0.7

C. 1.3

D. 1.8

Answer: D

Watch Video Solution

48. A committee of 4 is to be selected from a group of 7 women and 4 men . How many different committees of 2 men and 2 women can be formed ?

A. 22

B. 24

C. 126

D. 128

Answer: C

Watch Video Solution

49. If x , y ,and z are positive , with xy = 24 , xz = 48 , and yz = 72 , then x + y + z =

A. 22

B. 36

C. 50

D. 62

Answer: A

Watch Video Solution

50. In radians , $\sin^{-1}(\cos 100^\circ)$ =

A. -1.4

B. -0.2

C. 0.2

D. 1.0

Answer: B

 Watch Video Solution