

Applied Math Multiple Choice Questions (Mathematics)

Linear Equations and Inequalities

1. Solve for x: $3x + 5 = 20$

- A) 3
- B) 5
- C) 10
- D) 15

Answer: B

2. Which point satisfies $y = 2x + 1$?

- A) (1,3)
- B) (2,2)
- C) (0,0)
- D) (3,5)

Answer: A

3. Solve: $2x - 7 > 3$

- A) $x > 5$
- B) $x < 5$
- C) $x > 2$
- D) $x < 2$

Answer: A

4. The graph of $x + y = 4$ crosses y-axis at:

- A) 0
- B) 4
- C) -4
- D) 2

Answer: B

5. Which inequality represents all numbers less than 6?

- A) $x > 6$
- B) $x \geq 6$
- C) $x < 6$
- D) $x \leq -6$

Answer: C

6. Solve: $5x = 45$

- A) 5
- B) 9
- C) 10
- D) 15

Answer: B

Simultaneous Equations

7. Solve: $x + y = 5$ and $x - y = 1$

- A) (3,2)
- B) (2,3)
- C) (1,5)
- D) (4,1)

Answer: A

8. Two parallel lines have:

- A) One solution
- B) Infinite solutions
- C) No solution Answer:
- D) Two solutions

9. Which method can solve simultaneous equations?

- A) Substitution
- B) Elimination
- C) Graphing
- D) All of these

Answer: D

10. If two lines intersect once, the system has:

- A) No solution
- B) One solution
- C) Infinite solutions
- D) Two solutions

Answer: B

11. Solve: $2x + y = 7$ and $x - y = 2$

- A) (3,1)
- B) (2,3)
- C) (1,5)
- D) (4, -1)

Answer: A

12. The solution of simultaneous equations is the:

- A) Gradient
- B) Intercept
- C) Intersection point (Answer)
- D) Axis

Functions

13. A function assigns:

- A) One output to one input (Answer)
- B) Many outputs to one input
- C) No outputs
- D) Random outputs

14. Which relation is a function?

- A) $\{(1,2), (1,3)\}$
- B) $\{(1,2), (2,3)\}$
- C) $\{(2,1), (2,5)\}$
- D) $\{(3,4), (3,6)\}$

Answer: B

15. The vertical line test checks:

- A) Slope
- B) Area
- C) Function
- D) Intercept

Answer: C

16. $f(x) = x^2$ is:

- A) Linear
- B) Quadratic
- C) Exponential
- D) Logarithmic

Answer: B

17. Domain means:

- A) Possible outputs
- B) Possible inputs
- C) Range
- D) Graph

Answer: B

18. Range means:

- A) Possible outputs
- B) Possible inputs
- C) Axis
- D) Equation

Answer: A

Quadratic, Exponential, and Logarithmic Equations

19. Solve: $x^2 - 9 = 0$

- A) ± 3
- B) ± 9
- C) 3 only
- D) -3 only

Answer: A

20. The graph of $y = x^2$ is called:

- A) Circle
- B) Parabola
- C) Ellipse
- D) Line

Answer: B

21. Solve: $2^x = 8$

- A) 2
- B) 3
- C) 4
- D) 8

Answer: B

22. $\log_{10}(100) =$

- A) 1
- B) 2
- C) 10
- D) 100

Answer: B

23. The inverse of exponentials is:

- A) Quadratics
- B) Functions
- C) Logarithms
- D) Fractions

Answer: C

24. Solve: $x^2 - 5x + 6 = 0$

- A) 1, 6
- B) 2, 3
- C) 3, 5
- D) -2, -3

Answer: B

Applications of Functions

25. A company's profit modeled by $y = 2x + 5$ is:

- A) Linear
- B) Quadratic
- C) Exponential
- D) Logarithmic

Answer: A

26. Projectile motion is often modeled by:

- A) Linear functions
- B) Quadratic functions
- C) Logarithmic functions
- D) Ratios

Answer: B

27. Population growth usually follows:

- A) Quadratic
- B) Linear
- C) Exponential
- D) Logarithmic

Answer: C

28. The maximum point of a parabola is called:

- A) Root
- B) Vertex
- C) Axis
- D) Domain

Answer: B

29. Zeros of a function are where $y =$ _____,

- A) 1
- B) x
- C) 0
- D) ∞

Answer: C

30. The axis of symmetry of $f(x) = x^2 - 4x + 3$ is:

- A) $x = 2$
- B) $x = 4$
- C) $x = -2$
- D) $x = 3$

Answer: A

Graphs

31. An exponential graph usually:

- A) Decreases then increases
- B) Has a vertex
- C) Curves upward
- D) Is a straight line

Answer: C

32. A logarithmic graph has a:

- A) Vertical asymptote
- B) Horizontal line
- C) Vertex
- D) Circle

Answer: A

33. Quadratic graphs open upward when:

- A) $a < 0$
- B) $a > 0$
- C) $a = 0$
- D) $x = 0$

Answer: B

34. The graph of $f(x) = 3^x$ crosses y-axis at:

- A) 0
- B) 1
- C) 3
- D) -1

Answer: B

35. Which graph grows fastest?

- A) Linear
- B) Quadratic
- C) Exponential
- D) Logarithmic

Answer: C

36. A logarithmic function is defined for:

- A) $x < 0$
- B) $x > 0$
- C) All x
- D) $x = 0$

Answer: B

Interest and Growth

37. Simple interest formula is:

- A) $A = P(1 + r)^t$
- B) $I = Prt$
- C) $P = Irt$
- D) $A = P + r + t$

Answer: B

38. Compound interest involves:

- A) Addition only
- B) Repeated growth
- C) Subtraction
- D) Division

Answer: B

39. Compound interest is an example of:

- A) Linear growth
- B) Exponential growth
- C) Quadratic growth
- D) Decay

Answer: B

40. If \$100 grows to \$110 in one year, interest rate is:

- A) 5%
- B) 10%
- C) 15%
- D) 20%

Answer: B

41. Which earns more over time?

- A) Simple interest
- B) Compound interest
- C) Both same
- D) Neither

Answer: B

42. $A = P(1 + r)^t$ represents:

- A) Simple interest
- B) Compound interest
- C) Quadratic growth
- D) Logarithm

Answer: B

Exponents and Logarithms

43. $2^3 =$ _____

- A) 6
- B) 8
- C) 9
- D) 12

Answer: B

44. $\log_2(8) =$

- A) 2
- B) 3
- C) 4
- D) 8

Answer: B

45. $10^2 =$

- A) 20
- B) 100
- C) 1000
- D) 10

Answer: B

46. $\log_{10}(1000) =$

- A) 1
- B) 2
- C) 3
- D) 10

Answer: C

47. Exponential decay occurs when:

- A) $Base > 1$
- B) $Base = 1$
- C) $0 < base < 1$
- D) $Base < 0$

Answer: C

48. Rewrite $2^5 = 32$ in logarithmic form:

- A) $\log_2 32 = 5$
- B) $\log_5 2 = 32$
- C) $\log_{32} 2 = 5$
- D) $5^2 = 32$

Answer: A

Descriptive Statistics

49. Mean is the:

- A) Middle value
- B) Most frequent value
- C) Average
- D) Difference

Answer: C

50. Median is the:

- A) Average
- B) Middle value
- C) Largest value
- D) Smallest value

Answer: B

51. Mode is the:

- A) Middle number
- B) Average
- C) Most frequent value
- D) Range

Answer: C

52. A bar chart is used to:

- A) Show categories
- B) Solve equations
- C) Find roots
- D) Graph circles

Answer: A

53. Histograms display:

- A) Categorical data
- B) Continuous data
- C) Functions
- D) Equations

Answer: B

54. Pie charts represent:

- A) Percentages
- B) Functions
- C) Equations
- D) Lines

Answer: A

Probability

55. Probability values are between:

- A) 0 and 1
- B) 1 and 10
- C) -1 and 1
- D) 0 and 100

Answer: A

56. Probability of a sure event is:

- A) 0
- B) 0.5
- C) 1
- D) 2

Answer: C

57. A coin has how many outcomes?

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

Answer: B

58. $n!$ represents:

- A) Addition
- B) Factorial
- C) Exponent
- D) Fraction

Answer: B

59. The number of ways to arrange 3 objects is:

- A) 3
- B) 6
- C) 9
- D) 12

Answer: B

60. Tree diagrams help calculate:

- A) Area
- B) Probability
- C) Slope
- D) Volume

Answer: B