

DelsuTools Generated Past Questions

MTH 101: General Mathematics I

Department: Mathematics | Faculty: Science

Level: 100 | Semester: Harmattan | Session: 2019/2020

1. Question 1: Solve for x in the linear equation: $5x - 6 = 19$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 6 to both sides gives: $5x = 25$. Dividing by 5 gives $x = 5$.

2. Question 2: Find the sum of the first 2 positive integers.

- A. 3
- B. 1
- C. 5
- D. 6

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{2(2+1)}{2} = 3$.

3. Question 3: Evaluate the limit: $\lim_{x \rightarrow 3} \frac{x^2 - 9}{x - 3}$.

- A. 3
- B. 0
- C. 6
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 3)(x + 3)}{x - 3} = x + 3$. As $x \rightarrow 3$, the limit is $3 + 3 = 6$.

4. Question 4: Find the determinant of the matrix: $A = \begin{pmatrix} 13 & 1 \\ 15 & 2 \end{pmatrix}$.

- A. 11
- B. 13
- C. 8
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (13 \times 2) - (1 \times 15) = 26 - 15 = 11$.

5. Question 5: If $\log_2(x) = 7$, find the value of x .

- A. 64
- B. 128
- C. 256
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^7 = 128$.

6. Question 6: Solve for x in the linear equation: $21x - 16 = 89$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 16 to both sides gives: $21x = 105$. Dividing by 21 gives $x = 5$.

7. Question 7: Find the sum of the first 7 positive integers.

- A. 28
- B. 21
- C. 35
- D. 56

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{7(8)}{2} = 28$.

8. Question 8: Evaluate the limit: $\lim_{x \rightarrow 8} \frac{x^2 - 64}{x - 8}$.

- A. 8
- B. 0
- C. 16
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 8)(x + 8)}{x - 8} = x + 8$. As $x \rightarrow 8$, the limit is $8 + 8 = 16$.

9. Question 9: Find the determinant of the matrix: $A = \begin{pmatrix} 29 & 1 \\ 25 & 2 \end{pmatrix}$.

- A. 33
- B. 35
- C. 30
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (29 \times 2) - (1 \times 25) = 58 - 25 = 33$.

10. Question 10: If $\log_2(x) = 4$, find the value of x .

- A. 8
- B. 16
- C. 32
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^4 = 16$.

11. Question 11: Solve for x in the linear equation: $37x - 26 = 159$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 26 to both sides gives: $37x = 185$. Dividing by 37 gives $x = 5$.

12. Question 12: Find the sum of the first 12 positive integers.

- A. 78
- B. 66
- C. 90
- D. 156

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{12(13)}{2} = 78$.

13. Question 13: Evaluate the limit: $\lim_{x \rightarrow 13} \frac{x^2 - 169}{x - 13}$.

- A. 13
- B. 0
- C. 26
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 13)(x + 13)}{x - 13} = x + 13$. As $x \rightarrow 13$, the limit is $13 + 13 = 26$.

14. Question 14: Find the determinant of the matrix: $A = \begin{pmatrix} 45 & 1 \\ 35 & 2 \end{pmatrix}$.

- A. 55
- B. 57
- C. 52
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (45 \times 2) - (1 \times 35) = 90 - 35 = 55$.

15. Question 15: If $\log_2(x) = 9$, find the value of x .

- A. 256
- B. 512
- C. 1024
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^9 = 512$.

16. Question 16: Solve for x in the linear equation: $49x - 36 = 209$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 36 to both sides gives: $49x = 245$. Dividing by 49 gives $x = 5$.

17. Question 17: Find the sum of the first 17 positive integers.

- A. 153
- B. 136
- C. 170
- D. 306

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{17(18)}{2} = 153$.

18. Question 18: Evaluate the limit: $\lim_{x \rightarrow 18} \frac{x^2 - 324}{x - 18}$.

- A. 18
- B. 0
- C. 36
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 18)(x + 18)}{x - 18} = x + 18$. As $x \rightarrow 18$, the limit is $18 + 18 = 36$.

19. Question 19: Find the determinant of the matrix: $A = \begin{pmatrix} 61 & 1 \\ 45 & 2 \end{pmatrix}$.

- A. 77
- B. 79
- C. 74
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (61 \times 2) - (1 \times 45) = 122 - 45 = 77$.

20. Question 20: If $\log_2(x) = 6$, find the value of x .

- A. 32
- B. 64
- C. 128
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^6 = 64$.

21. Question 21: Solve for x in the linear equation: $65x - 46 = 279$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 46 to both sides gives: $65x = 325$. Dividing by 65 gives $x = 5$.

22. Question 22: Find the sum of the first 22 positive integers.

- A. 253
- B. 231
- C. 275
- D. 506

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{22(23)}{2} = 253$.

23. Question 23: Evaluate the limit: $\lim_{x \rightarrow 23} \frac{x^2 - 529}{x - 23}$.

- A. 23
- B. 0

- C. 46
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 23)(x + 23)}{x - 23} = x + 23$. As $x \rightarrow 23$, the limit is $23 + 23 = 46$.

24. Question 24: Find the determinant of the matrix: $A = \begin{pmatrix} 73 & 1 \\ 55 & 2 \end{pmatrix}$.

- A. 91
- B. 93
- C. 88
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (73 \times 2) - (1 \times 55) = 146 - 55 = 91$.

25. Question 25: If $\log_2(x) = 3$, find the value of x .

- A. 4
- B. 8
- C. 16
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^3 = 8$.

26. Question 26: Solve for x in the linear equation: $81x - 56 = 349$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 56 to both sides gives: $81x = 405$. Dividing by 81 gives $x = 5$.

27. Question 27: Find the sum of the first 27 positive integers.

- A. 378
- B. 351
- C. 405
- D. 756

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{27(28)}{2} = 378$.

28. Question 28: Evaluate the limit: $\lim_{x \rightarrow 28} \frac{x^2 - 784}{x - 28}$.

- A. 28
- B. 0
- C. 56
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 28)(x + 28)}{x - 28} = x + 28$. As $x \rightarrow 28$, the limit is $28 + 28 = 56$.

29. Question 29: Find the determinant of the matrix: $A = \begin{pmatrix} 89 & 1 \\ 65 & 2 \end{pmatrix}$.

- A. 113
- B. 115
- C. 110
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (89 \times 2) - (1 \times 65) = 178 - 65 = 113$.

30. Question 30: If $\log_2(x) = 8$, find the value of x .

- A. 128
- B. 256
- C. 512
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^8 = 256$.

31. Question 31: Solve for x in the linear equation: $97x - 66 = 419$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 66 to both sides gives: $97x = 485$. Dividing by 97 gives $x = 5$.

32. Question 32: Find the sum of the first 32 positive integers.

- A. 528
- B. 496
- C. 560
- D. 1056

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{32(33)}{2} = 528$.

33. Question 33: Evaluate the limit: $\lim_{x \rightarrow 33} \frac{x^2 - 1089}{x - 33}$.

- A. 33
- B. 0
- C. 66
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 33)(x + 33)}{x - 33} = x + 33$. As $x \rightarrow 33$, the limit is $33 + 33 = 66$.

34. Question 34: Find the determinant of the matrix: $A = \begin{pmatrix} 105 & 1 \\ 75 & 2 \end{pmatrix}$.

- A. 135
- B. 137
- C. 132
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (105 \times 2) - (1 \times 75) = 210 - 75 = 135$.

35. Question 35: If $\log_2(x) = 5$, find the value of x .

- A. 16
- B. 32
- C. 64
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^5 = 32$.

36. Question 36: Solve for x in the linear equation: $109x - 76 = 469$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 76 to both sides gives: $109x = 545$. Dividing by 109 gives $x = 5$.

37. Question 37: Find the sum of the first 37 positive integers.

- A. 703
- B. 666
- C. 740
- D. 1406

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{37(38)}{2} = 703$.

38. Question 38: Evaluate the limit: $\lim_{x \rightarrow 38} \frac{x^2 - 1444}{x - 38}$.

- A. 38
- B. 0
- C. 76
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 38)(x + 38)}{x - 38} = x + 38$. As $x \rightarrow 38$, the limit is $38 + 38 = 76$.

39. Question 39: Find the determinant of the matrix: $A = \begin{pmatrix} 121 & 1 \\ 85 & 2 \end{pmatrix}$.

- A. 157
- B. 159
- C. 154
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (121 \times 2) - (1 \times 85) = 242 - 85 = 157$.

40. Question 40: If $\log_2(x) = 2$, find the value of x .

- A. 2
- B. 4

- C. 8
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^2 = 4$.

41. Question 41: Solve for x in the linear equation: $125x - 86 = 539$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 86 to both sides gives: $125x = 625$. Dividing by 125 gives $x = 5$.

42. Question 42: Find the sum of the first 42 positive integers.

- A. 903
- B. 861
- C. 945
- D. 1806

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{42(43)}{2} = 903$.

43. Question 43: Evaluate the limit: $\lim_{x \rightarrow 43} \frac{x^2 - 1849}{x - 43}$.

- A. 43
- B. 0
- C. 86
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 43)(x + 43)}{x - 43} = x + 43$. As $x \rightarrow 43$, the limit is $43 + 43 = 86$.

44. Question 44: Find the determinant of the matrix: $A = \begin{pmatrix} 133 & 1 \\ 95 & 2 \end{pmatrix}$.

- A. 171
- B. 173
- C. 168
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (133 \times 2) - (1 \times 95) = 266 - 95 = 171$.

45. Question 45: If $\log_2(x) = 7$, find the value of x .

- A. 64
- B. 128
- C. 256
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^7 = 128$.

46. Question 46: Solve for x in the linear equation: $141x - 96 = 609$.

- A. $x = 2$
- B. $x = 4$
- C. $x = 5$
- D. $x = 8$

Answer: C

Explanation: Adding 96 to both sides gives: $141x = 705$. Dividing by 141 gives $x = 5$.

47. Question 47: Find the sum of the first 47 positive integers.

- A. 1128
- B. 1081
- C. 1175
- D. 2256

Answer: A

Explanation: Using the arithmetic series sum formula $S_n = \frac{n(n+1)}{2}$, we get $\frac{47(48)}{2} = 1128$.

48. Question 48: Evaluate the limit: $\lim_{x \rightarrow 48} \frac{x^2 - 2304}{x - 48}$.

- A. 48
- B. 0
- C. 96
- D. Undefined

Answer: C

Explanation: Factorizing the numerator: $\frac{(x - 48)(x + 48)}{x - 48} = x + 48$. As $x \rightarrow 48$, the limit is $48 + 48 = 96$.

49. Question 49: Find the determinant of the matrix: $A = \begin{pmatrix} 149 & 1 \\ 105 & 2 \end{pmatrix}$.

- A. 193
- B. 195
- C. 190
- D. 0

Answer: A

Explanation: Determinant $\det(A) = (149 \times 2) - (1 \times 105) = 298 - 105 = 193$.

50. Question 50: If $\log_2(x) = 4$, find the value of x .

- A. 8
- B. 16
- C. 32
- D. 10

Answer: B

Explanation: By logarithmic definition, $\log_2(x) = k$ implies $x = 2^k$. Therefore $x = 2^4 = 16$.