

# DelsuTools Generated Past Questions

## MTH 101: General Mathematics I

Department: Mathematics | Faculty: Science

Level: 100 | Semester: Harmattan | Session: 2018/2019

**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  $x = 2^4 = 16$ .