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## Number System



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## Number System

1. Which of the following fraction is the smallest?

$$\frac{9}{13}, \frac{17}{26}, \frac{28}{29}, \frac{33}{52}$$



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- A.  $\frac{33}{52}$
- B.  $\frac{17}{26}$
- C.  $\frac{9}{13}$
- D.  $\frac{28}{29}$

2.  $1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{7} + \frac{1}{14} + \frac{1}{28}$  is equal to:

- A. 2
- B. 2.5
- C. 3
- D. 3.5



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3. Unit digit in  $(264)^{102} + (264)^{103}$  is :

- A. 0
- B. 4
- C. 6
- D. 8



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4. When simplified the product

$$(1\frac{1}{3})(1\frac{1}{4})(1\frac{1}{5}) \dots \dots \dots (1\frac{1}{n}) = ?$$

- A.  $\frac{1}{n}$
- B.  $\frac{2}{n}$
- C.  $\frac{2(n-1)}{n}$
- D.  $\frac{2}{n(n-1)}$



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5. A student was asked to multiply a number by  $3/2$  but he divided that number by  $3/2$ . His result was 10 less than the correct answer. The number was:

- A. 10
- B. 12
- C. 15
- D. 20



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6.  $\frac{1}{20} + \frac{1}{30} + \frac{1}{42} + \frac{1}{56} + \frac{1}{72} + \frac{1}{90} + \frac{1}{110} + \frac{1}{132}$  is equal to :

- A.  $\frac{1}{8}$
- B.  $\frac{1}{7}$
- C.  $\frac{1}{6}$
- D.  $\frac{1}{10}$



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7. A number when divided successively by 4 and 5 leave the remainder 1 and 4 respectively. When it is successively divided by 5 and 4 the respective remainders will be

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



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8. A number consists of two digits such that the digit in the ten's place is less by 2 than the digit in the unit's place. Three times the number added to  $\frac{6}{7}$  times the number obtained by reversing the digits equals 108. The sum of digits in the number is :

- A. 8
- B. 9
- C. 6
- D. 7



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9. The digit in unit's place of the product  $(2153)^{167}$  is :

- A. 1
- B. 3
- C. 7
- D. 9



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10. How many 3-digits numbers, in all, are divisible by 6?

- A. 140
- B. 150
- C. 160
- D. 170



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11. It is given that  $(2^{32} + 1)$  is exactly divisible by a certain number, which one of the following is also definitely divisible by the same number?

- A.  $2^{96} + 1$
- B.  $7 \times 2^{33}$
- C.  $2^{16} - 1$
- D.  $2^{16} + 1$



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12. If  $1^3 + 2^3 + \dots + 10^3 = 3025$ , then the value of  $(2^3 + 4^3 + 6^3 + 8^3 + \dots + 20^3)$

- A. 7590
- B. 5060
- C. 24200
- D. 12100



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13. Find the unit digit of the expression  $888^{9235!} + 222^{9235!} + 666^{235!} + 999^{9999!}$

- A. 5
- B. 9
- C. 3
- D. None of these



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14. The last digit of the expression

$4 + 9^2 + 4^3 + 9^4 + 4^5 + 9^6 + \dots + 4^{99} + 9^{100}$  is :

- A. 0
- B. 3
- C. 5
- D. None of these



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15. The unit digit of  $2^{3^4} \times 3^{4^5} \times 4^{5^6} \times 5^{6^7} \times 6^{7^8} \times 7^{8^9}$  is :

- A. 0
- B. 5
- C. Can't be determined
- D. None of these



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16. Find the number of zeroes at the end of the product  $(3^{123} - 3^{122} - 3^{121}) (2^{121} - 2^{120} - 2^{119})$

- A. 1
- B. 0
- C. 119
- D. 120



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17. A number x when divided by 289 leaves 18 as the remainder. The same number when divided by 17 leaves y as a remainder. The value of y is

- A. 5
- B. 2
- C. 3
- D. 1



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18. Find the remainder when 999999999 is divided by 13

- A. 8
- B. 11
- C. 5
- D. 12



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19. Find the remainder when  $54^{124}$  is divided by

17

- A. 4
- B. 5
- C. 3
- D. 15



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20. Which of the following statement(s) is/are TRUE?

- I. Highest common factor of  $(3^{2002} - 1)$  and  $(3^{2002} + 1)$  is 4.
- II.  $(4^{84} - 1)$  is exactly divisible by 5.

**Options:**

- A. Only I
- B. Only II
- C. Neither I nor II
- D. Both I and II



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21. How many perfect cubes are there 1 and 100000 which are divisible by 7?

- A. 5
- B. 6
- C. 7
- D. 15



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22. If  $A = 0.142857142857\dots$  and  $B = 0.16666\dots$ , then what is the value of  $(A+B)/AB$ ?

- A. 10
- B. 11
- C. 12
- D. 13



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23. If  $A = 0.\overline{abcabc}\dots$ , then by what number A should be multiplied so as to get an integral value?

- A. 2997
- B. 1000
- C. 1998
- D. Both 2997 and 1998



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24. If  $N = 4^{11} + 4^{12} + 4^{13} + 4^{14}$ , then how many positive factors of N are there?

- A. 92
- B. 48
- C. 50
- D. 51



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25. If  $N = 3^{14} + 3^{13} - 12$ , then what is the largest prime factor of N?

- A. 11
- B. 79
- C. 13
- D. 73



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26. If the unit digit of  $433 \times 456 \times 43N$  is  $(N+2)$ , then what is the value of N?

- A. 1
- B. 8
- C. 3
- D. 6



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27. If  $N = (12345)^2 + 12345 + 12346$ , then what is the value of  $\sqrt{N}$ ?

- A. 12346
- B. 12345
- C. 12344
- D. 12347



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28. If  $P = 2^2 + 6^2 + 10^2 + 14^2 + \dots 94^2$  and  $Q = 1^2 + 5^2 + 9^2 + \dots 81^2$ , then what is the value of  $P - Q$ ?

- A. 24645
- B. 26075
- C. 29317
- D. 31515



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29. If  $A = \frac{1}{0.4} + \frac{1}{0.04} + \frac{1}{0.004} + \dots$  upto 8 terms, then what is the value of A?

- A. 27272727.5
- B. 25252525.5
- C. 27777777.5
- D. 25555555.5



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30. How many natural numbers are there between  $\sqrt{261}$  and  $\sqrt{45109}$  ?

- A. 144
- B. 196
- C. 168
- D. 195



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Answers Keys:-

1	A	11	A	21	B
2	A	12	C	22	D
3	A	13	B	23	D
4	B	14	A	24	A
5	B	15	A	25	D
6	C	16	A	26	D
7	C	17	D	27	A
8	C	18	B	28	B
9	C	19	A	29	C
10	B	20	B	30	B