NUMBER SYSTEM

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Introduction to Number Theory:-

In number theory, the numbers are classified into different types, such as natural numbers, whole numbers, complex numbers, and so on. The sub-classifications of the natural number are given below:

- Odd Numbers – 1, 3, 5, 7, 9, 11, 13, 15, 17, 19…..
- Even Numbers – 2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22 . . .
- Square Numbers – 4, 9, 16, 25, 36, 49, 64, 81,100 . . .
- Cube Numbers – 8, 27, 64, 125, 216, 343, 512 . . .
- Prime Numbers – 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47,53, 59, 61 . . .
- Composite Numbers – 4, 6, 8, 9, 10, 12, 14, 15, 16,18, 20, 21, 22, 24 . . .
- 1 (modulo 4) Numbers – 1, 5, 9, 13, 17, 21, 25, . . .
- 3 (modulo 4) Numbers – 3, 7, 11, 15, 19, 23, 27, . . .
- Triangular Numbers – 3, 6, 10, 15, 21, 28, 36, 45,. . .
- Perfect Numbers – 6, 28, 496, 8128, . . .
- Fibonacci Numbers -1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89. . .

BODMAS:-

BODMAS - Order of Simplification of an expression of numbers

B	=	Bracket
O	=	Of
D	=	Division
M	=	Multiplication
A	=	Addition
S	=	Subtraction

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Q 1. What is the unit digit of the product of 207·781·39·94?

(a) 9

(b) 1

(c) 7

(d) 2

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NUMBER SYSTEM

Q 1. What is the unit digit of the product of 207·781·39·94?

(a) 9

(b) 1

(c) 7

(d) 2

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Q 2. What will come in the place of unit digit in the value of $(7^{35}).(3^{71}).(11^{55})$?

(a) 0

(b) 3

(c) 1

(d) 6

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Q 2. What will come in the place of unit digit in the value of $(7^{35}).(3^{71}).(11^{55})$?

(a) 0

(b) 3

(c) 1

(d) 6

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Q 3. Find the number of zeros at the end of the product of 1 × 2 × 3 × 4 × 5 × 6 ..... × 99 × 100 :

(a) 22

(b) 24

(c) 26

(d) 28

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Q 3. Find the number of zeros at the end of the product of 1 × 2 × 3 × 4 × 5 × 6 ..... × 99 × 100 :

(a) 22

(b) 24

(c) 26

(d) 28

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Q 4. Find the number of zeros at the end of the product of $2 \times 4 \times 6 \times 8 \times 10 \times \ldots\ldots \times 98 \times 100$:

(a) 10

(b) 11

(c) 12

(d) 15

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Q 4. Find the number of zeros at the end of the product of 2 × 4 × 6 × 8 × 10 × ..... × 98 × 100 :

(a) 10

(b) 11

(c) 12

(d) 15

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Q 5. Find the number of zeros at the end of the product of 10 × 20 × 30 × ..... × 2000 :

(a) 222

(b) 249

(c) 226

(d) 220

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Q 5. Find the number of zeros at the end of the product of 10 × 20 × 30 × ..... × 2000 :

(a) 222

(b) 249

(c) 226

(d) 220

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Q 6. Find the number of factors of 100 :

(a) 8

(b) 9

(c) 10

(d) 12

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Q 6. Find the number of factors of 100 :

(a) 8

(b) 9

(c) 10

(d) 12

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Q 7. Find the number of factors of 80 :

(a) 10

(b) 12

(c) 6

(d) 8

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Q 7. Find the number of factors of 80 :

(a) 10

(b) 12

(c) 6

(d) 8

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Q 8. Find the sum of the factors of 100 :

(a) 127

(b) 217

(c) 219

(d) 189

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Q 8. Find the sum of the factors of 100 :

(a) 127

(b) 217

(c) 219

(d) 189

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Q 9. Find the sum of the factors of 50 :

(a) 92

(b) 93

(c) 97

(d) 91

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Q 9. Find the sum of the factors of 50 :

(a) 92

(b) 93

(c) 97

(d) 91

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Q 10. Find the average of the factors of 60 :

(a) 12

(b) 13

(c) 14

(d) 16

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Q 10. Find the average of the factors of 60 :

(a) 12

(b) 13

(c) 14

(d) 16

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Q 11. Find the product of the factors of 100 :

(a) 10^9

(b) $10^{9/2}$

(c) $10^{11/2}$

(d) 10^{19}

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Q 11. Find the product of the factors of 100 :

(a) 10^9

(b) $10^{9/2}$

(c) $10^{11/2}$

(d) 10^{19}

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Q 12. How many 3 digit numbers are completely divisible by 6?

(a) 149

(b) 150

(c) 151

(d) 166

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Q 12. How many 3 digit numbers are completely divisible by 6?

(a) 149

(b) 150

(c) 151

(d) 166

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Q 13. How many 3 digit numbers are completely divisible by 3 and 4 :

(a) 67

(b) 75

(c) 57

(d) 83

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Q 13. How many 3 digit numbers are completely divisible by 3 and 4 :

(a) 67

(b) 75

(c) 57

(d) 83

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Q 14 . What will be the remainder when 17^{200} is divided by 18?

(a) 17

(b) 16

(c) 1

(d) 2

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Q 14 . What will be the remainder when 17^{200} is divided by 18?

(a) 17

(b) 16

(c) 1

(d) 2

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Q 14 A. Find the remainder when 3^{85} is divided by 6.

(a) 3

(b) 16

(c) 1

(d) 2

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Q 14 A. Find the remainder when 3^{85} is divided by 6.

(a) 3

(b) 16

(c) 1

(d) 2

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Q 14 B. Find the remainder when 2^{70} is divided by 96.

(a) 64

(b) 63

(c) 1

(d) 2

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Q 14 B. Find the remainder when 2^{70} is divided by 96.

(a) 64

(b) 63

(c) 1

(d) 2

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Q 15. What will be the remainder when (67^{67} + 67) is divided by 68?

(a) 1

(b) 66

(c) 67

(d) 60

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Q 15. What will be the remainder when $(67^{67} + 67)$ is divided by 68?

(a) 1

(b) 66

(c) 67

(d) 60

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Q 16. Which of the following number will completely divide $(49^{15} - 1)$?

(a) 8

(b) 14

(c) 51

(d) 50

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Q 16. Which of the following number will completely divide $(49^{15} - 1)$?

(a) 8

(b) 14

(c) 51

(d) 50

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Q 17. A number when divided by 6 leaves a remainder of 3. When the square of the number is divided by 6, the remainder is:

(a) 0

(b) 1

(c) 3

(d) 2

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Q 17. A number when divided by 6 leaves a remainder of 3. When the square of the number is divided by 6, the remainder is:

(a) 0

(b) 1

(c) 3

(d) 2

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Q 18. A number when divided successively by 4 and 5 leaves remainders 1 and 4 respectively. When it is successively divided by 5 and 4, then the respective remainders will be :

(a) 1, 2

(b) 2, 3

(c) 3, 2

(d) 4, 1

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Q 18. A number when divided successively by 4 and 5 leaves remainders 1 and 4 respectively. When it is successively divided by 5 and 4, then the respective remainders will be :

(a) 1, 2

(b) 2, 3

(c) 3, 2

(d) 4, 1

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Q 19. A number was divided successively in order by 4, 5, and 6. The remainder were respectively 2, 3, and 4. The number is :

(a) 214

(b) 476

(c) 954

(d) 1908

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Q 19. A number was divided successively in order by 4, 5, and 6. The remainder were respectively 2, 3, and 4. The number is :

(a) 214

(b) 476

(c) 954

(d) 1908

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NUMBER SYSTEM

Q 20. Which one of the following numbers will completely divide ($4^{61} + 4^{62} + 4^{63} + 4^{64}$)?

(a) 3

(b) 9

(c) 11

(d) 17

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NUMBER SYSTEM

Q 20. Which one of the following numbers will completely divide $(4^{61} + 4^{62} + 4^{63} + 4^{64})$?

(a) 3

(b) 9

(c) 11

(d) 17

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Q 21. Which one of the following numbers will completely divide $5^{51} + 5^{52} + 5^{53}$?

(a) 11

(b) 12

(c) 31

(d) 32

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Q 21. Which one of the following numbers will completely divide $5^{51} + 5^{52} + 5^{53}$

(a) 11

(b) 12

(c) 31

(d) 32

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Q 22. Which one of the following is the common factor of $(47^{43} + 43^{43})$ and $(47^{47} + 43^{47})$?

(a) 47 – 43

(b) 47 + 43

(c) $47^{43} + 43^{43}$

(d) $47^{47} + 43^{47}$

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NUMBER SYSTEM

Q 22. Which one of the following is the common factor of $(47^{43} + 43^{43})$ and $(47^{47} + 43^{47})$?

(a) 47 – 43

(b) 47 + 43

(c) $47^{43} + 43^{43}$

(d) $47^{47} + 43^{47}$

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Q 23. Which one of the following numbers is completely divisible by 99?

(a) 3572

(b) 13595

(c) 913464

(d) 114345

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Q 23. Which one of the following numbers is completely divisible by 99?

(a) 3572

(b) 13595

(c) 913464

(d) 114345

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Q 24. Which one of the following numbers is completely divisible by 45?

(a) 181560

(b) 331145

(c) 202860

(d) 203350

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Q 24. Which one of the following numbers is completely divisible by 45?

(a) 181560

(b) 331145

(c) 202860

(d) 203350

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Q 25. The sum of digits of a two-digit number is 7. If the digits of the number are interchanged, the number so formed is greater than the original number by 27. Find the original number :

(a) 29

(b) 25

(c) 79

(d) 32

(e) None of these

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Q 25. The sum of digits of a two-digit number is 7. If the digits of the number are interchanged, the number so formed is greater than the original number by 27. Find the original number :

(a) 29

(b) 25

(c) 79

(d) 32

(e) None of these

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Q 26. What is the digit in the blank space of the number 34*7 so that the number is divisible by 11?

(a) 3

(b) 6

(c) 7

(d) 8

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NUMBER SYSTEM

Q 26. What is the digit in the blank space of the number 34*7 so that the number is divisible by 11?

(a) 3

(b) 6

(c) 7

(d) 8

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NUMBER SYSTEM

Q 27. If the sum of, the digits of a two-digit number and the number formed by reversing its digit is 99, what is the sum of the digits of the original number?

(a) 9

(b) 8

(c) 11

(d) 10

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NUMBER SYSTEM

Q 27. If the sum of, the digits of a two-digit number and the number formed by reversing its digit is 99, what is the sum of the digits of the original number?

(a) 9

(b) 8

(c) 11

(d) 10

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NUMBER SYSTEM

Q 28. If the sum of, the digits of a two-digit number and the number formed by reversing its digits is N, Which one of the following numbers will completely divide N?

(a) 9

(b) 7

(c) 11

(d) 18

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NUMBER SYSTEM

Q 28. If the sum of, the digits of a two-digit number and the number formed by reversing its digits is N, Which one of the following numbers will completely divide N?

(a) 9

(b) 7

(c) 11

(d) 18

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NUMBER SYSTEM

Q 29. If the difference between, a two-digit number and a number formed by reversing its digit is N, Which one of the following numbers will completely divide N :

(a) 9

(b) 7

(c) 11

(d) 5

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NUMBER SYSTEM

Q 29. If the difference between, a two-digit number and a number formed by reversing its digit is N, Which one of the following numbers will completely divide N :

(a) 9

(b) 7

(c) 11

(d) 5

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NUMBER SYSTEM

Q 30. If the difference between a two digit number and the number formed by reversing its digit is 45, what is the difference between the digits of the original number :

(a) 9

(b) 2

(c) 5

(d) 1

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NUMBER SYSTEM

Q 30. If the difference between a two digit number and the number formed by reversing its digit is 45, what is the difference between the digits of the original number :

(a) 9

(b) 2

(c) 5

(d) 1

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NUMBER SYSTEM

Q 31. A 4-digit number is formed by repeating a 2-digit number such as 2525, 3232, etc. Any number of this form is always divisible by :

(a) Smallest two-digit prime number

(b) 7

(c) 13

(d) smallest three-digit prime number

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NUMBER SYSTEM

Q 31. A 4-digit number is formed by repeating a 2-digit number such as 2525, 3232, etc. Any number of this form is always divisible by :

(a) Smallest two-digit prime number

(b) 7

(c) 13

(d) smallest three-digit prime number

NUMBER SYSTEM

Q 32. $7^{12} - 4^{12}$ is exactly divisibly by which of the following?

(a) 36

(b) 35

(c) 34

(d) 33

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NUMBER SYSTEM

Q 32. $7^{12} - 4^{12}$ is exactly divisibly by which of the following?

(a) 36

(b) 35

(c) 34

(d) 33

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NUMBER SYSTEM

Q 33. Find the sum of the first fifty natural numbers :

(a) 1144

(b) 1275

(c) 1325

(d) 1075

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NUMBER SYSTEM

Q 33. Find the sum of the first fifty natural numbers :

(a) 1144

(b) 1275

(c) 1325

(d) 1075

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NUMBER SYSTEM

Q 34. Find the value of 51+52+53+54+……+100 :

(a) 2443

(b) 1754

(c) 2673

(d) 3775

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NUMBER SYSTEM

Q 34. Find the value of 51+52+53+54+……+100 :

(a) 2443

(b) 1754

(c) 2673

(d) 3775

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Q 35. Find the sum of the squares of the first 30 natural numbers :

(a) 9455

(b) 8372

(c) 7849

(d) 6973

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 35. Find the sum of the squares of the first 30 natural numbers :

(a) 9455

(b) 8372

(c) 7849

(d) 6973

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NUMBER SYSTEM

Q 36. Find the value of $2^2 + 4^2 + 6^2 + 8^2 + \ldots\ldots + 20^2$:

(a) 2870

(b) 1321

(c) 1540

(d) 1550

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NUMBER SYSTEM

Q 36. Find the value of $2^2 + 4^2 + 6^2 + 8^2 + \ldots\ldots + 20^2$:

(a) 2870

(b) 1321

(c) 1540

(d) 1550

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NUMBER SYSTEM

Q37. Find the value of $1^2 + 3^2 + 5^2 + 7^2 + \ldots\ldots\ldots\ldots + 19^2$:

(a) 1335

(b) 1330

(c) 1332

(d) 1334

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NUMBER SYSTEM

Q37. Find the value of $1^2 + 3^2 + 5^2 + 7^2 + \ldots\ldots\ldots\ldots + 19^2$:

(a) 1335

(b) 1330

(c) 1332

(d) 1334

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NUMBER SYSTEM

Q38. If $1^2 + 2^2 + 3^2 + 4^2 + \ldots\ldots\ldots + 10^2 = 385$, find the value of $2^2 + 4^2 + 6^2 + \ldots\ldots + 20^2$:

(a) 1250

(b) 1540

(c) 1190

(d) 1375

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NUMBER SYSTEM

Q38. If $1^2 + 2^2 + 3^2 + 4^2 + \ldots\ldots\ldots + 10^2 = 385$, find the value of $2^2 + 4^2 + 6^2 + \ldots\ldots + 20^2$:

(a) 1250

(b) 1540

(c) 1190

(d) 1375

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NUMBER SYSTEM

Q 39. Find the value of $11^2 + 12^2 + 13^2 + 14^2 + \ldots\ldots\ldots\ldots + 20^2$:

(a) 2870

(b) 2485

(c) 2670

(d) 2495

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NUMBER SYSTEM

Q 39. Find the value of $11^2 + 12^2 + 13^2 + 14^2 + \ldots\ldots\ldots\ldots + 20^2$:

(a) 2870

(b) 2485

(c) 2670

(d) 2495

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NUMBER SYSTEM

Q 40. Find the value of $1^3 + 3^3 + 5^3 + 7^3 + \ldots\ldots\ldots\ldots + 29^3$:

(a) 36100

(b) 101025

(c) 32500

(d) 44700

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NUMBER SYSTEM

Q 40. Find the value of $1^3 + 3^3 + 5^3 + 7^3 + \ldots\ldots\ldots\ldots + 29^3$:

(a) 36100

(b) 101025

(c) 32500

(d) 44700

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NUMBER SYSTEM

Q 41. If $1^3 + 2^3 + 3^3 + 4^3 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots + 10^3 = 3025$, find the value of $2^3 + 4^3 + 6^3 + \ldots + 20^3$:

(a) 2875

(b) 24200

(c) 3080

(d) 39400

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Q 41. If $1^3 + 2^3 + 3^3 + 4^3 + \ldots\ldots\ldots\ldots\ldots\ldots\ldots + 10^3 = 3025$, find the value of $2^3 + 4^3 + 6^3 + \ldots + 20^3$:

(a) 2875

(b) 24200

(c) 3080

(d) 39400

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Q 42. Find the sum of all even numbers up to 100 :

(a) 2295

(b) 2425

(c) 2495

(d) 2550

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NUMBER SYSTEM

Q 42. Find the sum of all even numbers up to 100 :

(a) 2295

(b) 2425

(c) 2495

(d) 2550

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Q 43. Find the sum of the all odd number up to 100 :

(a) 2100

(b) 2500

(c) 2300

(d) 2200

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NUMBER SYSTEM

Q 43. Find the sum of the all odd number up to 100 :

(a) 2100

(b) 2500

(c) 2300

(d) 2200

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Q 44. Find the number of prime factors of $6^{20} \cdot 11^{11} \cdot 21^{21}$:

(a) 83

(b) 93

(c) 103

(d) 113

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NUMBER SYSTEM

Q 44. Find the number of prime factors of $6^{20} \cdot 11^{11} \cdot 21^{21}$:

(a) 83

(b) 93

(c) 103

(d) 113

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NUMBER SYSTEM

Q 45. Find the number of prime factors of $14^{14} \cdot 15^{15}$:

(a) 48

(b) 58

(c) 68

(d) 78

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NUMBER SYSTEM

Q 45. Find the number of prime factors of $14^{14} \cdot 15^{15}$:

(a) 48

(b) 58

(c) 68

(d) 78

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Q 46. What will be the remainder when $(27^{27} + 17^{27})$ is divided by 11?

(a) 27

(b) 17

(c) 0

(d) 1

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Q 46. What will be the remainder when $(27^{27} + 17^{27})$ is divided by 11?

(a) 27

(b) 17

(c) 0

(d) 1

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Q 47. If n is a natural number, (n^3 - n) will always be divisible by:

(a) 6 only

(b) 6 and 12 both

(c) 12 only

(d) by 18 only

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Q 47. If n is a natural number, (n^3 - n) will always be divisible by:

(a) 6 only

(b) 6 and 12 both

(c) 12 only

(d) by 18 only

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Q 48. ($x^n - a^n$) is completely divisible by (x - a), when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

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NUMBER SYSTEM

Q 48. ($x^n - a^n$) is completely divisible by (x - a), when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

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Q 49. ($x^n - a^n$) is completely divisible by (x + a), when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 49. ($x^n - a^n$) is completely divisible by (x + a), when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

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NUMBER SYSTEM

Q 50. $(x^n + a^n)$ is completely divisible by $(x + a)$, when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 50. ($x^n + a^n$) is completely divisible by (x + a), when

(a) n is any natural number

(b) n is an even natural number

(c) n is an odd natural number

(d) n is a prime number

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Q 51. Which one of the following is a prime number?

(a) 161

(b) 221

(c) 373

(d) 437

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NUMBER SYSTEM

Q 51. Which one of the following is a prime number?

(a) 161

(b) 221

(c) 373

(d) 437

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Q 52. Which one of the following is a prime number?

(a) 119

(b) 187

(c) 247

(d) 71

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NUMBER SYSTEM

Q 52. Which one of the following is a prime number?

(a) 119

(b) 187

(c) 247

(d) 71

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Q 53. Find the largest four-digit number which is divisible by 88 :

(a) 9944

(b) 9768

(c) 9988

(d) 8888

CHITKARA UNIVERSITY

NUMBER SYSTEM

Q 53. Find the largest four-digit number which is divisible by 88 :

(a) 9944

(b) 9768

(c) 9988

(d) 8888

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Q 54. If a number is divided by 111, the remainder is 31. What will be the remainder if it is divided by 37?

(a) 31

(b) 32

(c) 33

(d) 0

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NUMBER SYSTEM

Q 54. If a number is divided by 111, the remainder is 31. What will be the remainder if it is divided by 37?

(a) 31

(b) 32

(c) 33

(d) 0

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NUMBER SYSTEM

Q 55. On multiplying a number by 7, the product is a number made of only the digit 3. The smallest such number is:

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(b) 47719

(c) 48619

(d) 47649

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THANK YOU

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