**Numbers**

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| 1. | Which one of the following is not a prime number? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 31 | [**B.**](javascript:%20void%200;) | 61 | | [**C.**](javascript:%20void%200;) | 71 | [**D.**](javascript:%20void%200;) | 91 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  91 is divisible by 7. So, it is not a prime number. |

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| 2. | (112 x 54) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 67000 | [**B.**](javascript:%20void%200;) | 70000 | | [**C.**](javascript:%20void%200;) | 76500 | [**D.**](javascript:%20void%200;) | 77200 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | (112 x 54) = 112 x | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 10 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | 4 | = | 112 x 104 | = | 1120000 | = 70000 | | 2 | 24 | 16 | |

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| 3. | It is being given that (232 + 1) is completely divisible by a whole number. Which of the following numbers is completely divisible by this number? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | (216 + 1) | [**B.**](javascript:%20void%200;) | (216 - 1) | | [**C.**](javascript:%20void%200;) | (7 x 223) | [**D.**](javascript:%20void%200;) | (296 + 1) |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Let 232 = *x*. Then, (232 + 1) = (*x* + 1).  Let (*x* + 1) be completely divisible by the natural number N. Then,  (296 + 1) = [(232)3 + 1] = (*x*3 + 1) = (*x* + 1)(*x*2 - *x* + 1), which is completely divisible by N, since (*x* + 1) is divisible by N. |

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| 4. | What least number must be added to 1056, so that the sum is completely divisible by 23 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2 | [**B.**](javascript:%20void%200;) | 3 | | [**C.**](javascript:%20void%200;) | 18 | [**D.**](javascript:%20void%200;) | 21 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  23) 1056 (45  92  ---  136  115  ---  21  ---    Required number = (23 - 21)  = 2. |

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| 5. | 1397 x 1397 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | A[.](javascript:%20void%200;) | 1951609 | B[.](javascript:%20void%200;) | 1981709 | | C[.](javascript:%20void%200;) | 18362619 | D[.](javascript:%20void%200;) | 2031719 | | E[.](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  | | --- | --- | | 1397 x 1397 | = (1397)2 | |  | = (1400 - 3)2 | |  | = (1400)2 + (3)2 - (2 x 1400 x 3) | |  | = 1960000 + 9 - 8400 | |  | = 1960009 - 8400 | |  | = 1951609. | |

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| 6. | How many of the following numbers are divisible by 132 ? 264, 396, 462, 792, 968, 2178, 5184, 6336 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4 | [**B.**](javascript:%20void%200;) | 5 | | [**C.**](javascript:%20void%200;) | 6 | [**D.**](javascript:%20void%200;) | 7 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  132 = 4 x 3 x 11  So, if the number divisible by all the three number 4, 3 and 11, then the number is divisible by 132 also.  264 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 11,3,4 (/)  396 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 11,3,4 (/)  462 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 11,3 (X)  792 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 11,3,4 (/)  968 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 11,4 (X)  2178 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 11,3 (X)  5184 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 3,4 (X)  6336 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 11,3,4 (/)  Therefore the following numbers are divisible by 132 : 264, 396, 792 and 6336.  Required number of number = 4. |

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| 7. | (935421 x 625) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 575648125 | [**B.**](javascript:%20void%200;) | 584638125 | | [**C.**](javascript:%20void%200;) | 584649125 | [**D.**](javascript:%20void%200;) | 585628125 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | 935421 x 625 = 935421 x 54 = 935421 x | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 10 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | 4 | | 2 |  |  |  |  |  | | --- | --- | --- | --- | | = | 935421 x 104 | = | 9354210000 | | 24 | 16 |   = 584638125 |

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| 8. | The largest 4 digit number exactly divisible by 88 is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 9944 | [**B.**](javascript:%20void%200;) | 9768 | | [**C.**](javascript:%20void%200;) | 9988 | [**D.**](javascript:%20void%200;) | 8888 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Largest 4-digit number = 9999  88) 9999 (113  88  ----  1199  88  ----  319  264  ---  55  ---    Required number = (9999 - 55)  = 9944. |

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| 9. | Which of the following is a prime number ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 33 | [**B.**](javascript:%20void%200;) | 81 | | [**C.**](javascript:%20void%200;) | 93 | [**D.**](javascript:%20void%200;) | 97 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Clearly, 97 is a prime number. |

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| 10. | What is the unit digit in {(6374)1793 x (625)317 x (341491)}? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 2 | | [**C.**](javascript:%20void%200;) | 3 | [**D.**](javascript:%20void%200;) | 5 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Unit digit in (6374)1793 = Unit digit in (4)1793      = Unit digit in [(42)896 x 4]      = Unit digit in (6 x 4) = 4  Unit digit in (625)317 = Unit digit in (5)317 = 5  Unit digit in (341)491 = Unit digit in (1)491 = 1  Required digit = Unit digit in (4 x 5 x 1) = 0. |

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| 11. | 5358 x 51 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 273258 | [**B.**](javascript:%20void%200;) | 273268 | | [**C.**](javascript:%20void%200;) | 273348 | [**D.**](javascript:%20void%200;) | 273358 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  | | --- | --- | | 5358 x 51 | = 5358 x (50 + 1) | |  | = 5358 x 50 + 5358 x 1 | |  | = 267900 + 5358 | |  | = 273258. | |

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| 12. | The sum of first five prime numbers is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 11 | [**B.**](javascript:%20void%200;) | 18 | | [**C.**](javascript:%20void%200;) | 26 | [**D.**](javascript:%20void%200;) | 28 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Required sum = (2 + 3 + 5 + 7 + 11) = 28.  Note: 1 is not a prime number.  **Definition:** A prime number (or a prime) is a natural number that has exactly two distinct natural number divisors: 1 and itself. |

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| 13. | The difference of two numbers is 1365. On dividing the larger number by the smaller, we get 6 as quotient and the 15 as remainder. What is the smaller number ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 240 | [**B.**](javascript:%20void%200;) | 270 | | [**C.**](javascript:%20void%200;) | 295 | [**D.**](javascript:%20void%200;) | 360 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Let the smaller number be *x*. Then larger number = (*x* + 1365).  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *x* + 1365 = 6*x* + 15  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 5*x* = 1350  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *x* = 270  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifSmaller number = 270. |

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| 14. | (12)3 x 64 ÷ 432 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 5184 | [**B.**](javascript:%20void%200;) | 5060 | | [**C.**](javascript:%20void%200;) | 5148 | [**D.**](javascript:%20void%200;) | 5084 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Given Exp. = | (12)3 x 64 | = | (12)3 x 64 | = (12)2 x 62 = (72)2 = 5184 | | 432 | 12 x 62 | |

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| 15. | 72519 x 9999 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 725117481 | [**B.**](javascript:%20void%200;) | 674217481 | | [**C.**](javascript:%20void%200;) | 685126481 | [**D.**](javascript:%20void%200;) | 696217481 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  | | --- | --- | | 72519 x 9999 | = 72519 x (10000 - 1) | |  | = 72519 x 10000 - 72519 x 1 | |  | = 725190000 - 72519 | |  | = 725117481. | |

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| 16. | If the number 517 \* 324 is completely divisible by 3, then the smallest whole number in the place of \* will be: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 1 | | [**C.**](javascript:%20void%200;) | 2 | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Sum of digits = (5 + 1 + 7 + *x* + 3 + 2 + 4) = (22 + *x*), which must be divisible by 3.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif  *x* = 2. |

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| 17. | The smallest 3 digit prime number is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 101 | [**B.**](javascript:%20void%200;) | 103 | | [**C.**](javascript:%20void%200;) | 109 | [**D.**](javascript:%20void%200;) | 113 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  The smallest 3-digit number is 100, which is divisible by 2.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif 100 is not a prime number.  101 < 11 and 101 is not divisible by any of the prime numbers 2, 3, 5, 7, 11.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif101 is a prime number.  Hence 101 is the smallest 3-digit prime number. |

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| 18. | Which one of the following numbers is exactly divisible by 11? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 235641 | [**B.**](javascript:%20void%200;) | 245642 | | [**C.**](javascript:%20void%200;) | 315624 | [**D.**](javascript:%20void%200;) | 415624 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  (4 + 5 + 2) - (1 + 6 + 3) = 1, not divisible by 11.  (2 + 6 + 4) - (4 + 5 + 2) = 1, not divisible by 11.  (4 + 6 + 1) - (2 + 5 + 3) = 1, not divisible by 11.  (4 + 6 + 1) - (2 + 5 + 4) = 0, So, 415624 is divisible by 11. |

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| 19. | (?) - 19657 - 33994 = 9999 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 63650 | [**B.**](javascript:%20void%200;) | 53760 | | [**C.**](javascript:%20void%200;) | 59640 | [**D.**](javascript:%20void%200;) | 61560 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  19657 Let *x* - 53651 = 9999  33994 Then, *x* = 9999 + 53651 = 63650  -----  53651  ----- |

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| 20. | The sum of first 45 natural numbers is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1035 | [**B.**](javascript:%20void%200;) | 1280 | | [**C.**](javascript:%20void%200;) | 2070 | [**D.**](javascript:%20void%200;) | 2140 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Let Sn =(1 + 2 + 3 + ... + 45). This is an A.P. in which a =1, d =1, n = 45.   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Sn = | n | [2*a* + (*n* - 1)*d*] | = | 45 | x [2 x 1 + (45 - 1) x 1] | = | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 45 | x 46 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | = (45 x 23) | | 2 | 2 | 2 |   = 45 x (20 + 3)  = 45 x 20 + 45 x 3  = 900 + 135  = 1035.  **Shorcut Method:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Sn = | *n*(*n* + 1) | = | 45(45 + 1) | = 1035. | | 2 | 2 | |

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| 21. | Which of the following number is divisible by 24 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 35718 | [**B.**](javascript:%20void%200;) | 63810 | | [**C.**](javascript:%20void%200;) | 537804 | [**D.**](javascript:%20void%200;) | 3125736 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  24 = 3 x8, where 3 and 8 co-prime.  Clearly, 35718 is not divisible by 8, as 718 is not divisible by 8.  Similarly, 63810 is not divisible by 8 and 537804 is not divisible by 8.  Cibsuder oart (d).  Sum of digits = (3 + 1 + 2 + 5 + 7 + 3 + 6) = 27, which is divisible by 3.  Also, 736 is divisible by 8.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif 3125736 is divisible by (3 x 8), *i.e.,* 24. |

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| 22. | |  |  | | --- | --- | | 753 x 753 + 247 x 247 - 753 x 247 | = ? | | 753 x 753 x 753 + 247 x 247 x 247 | |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 1000 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 1 | | 506 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 253 | | 500 | | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Given Exp. = | (*a*2 + *b*2 - *ab*) | = | 1 | = | 1 | = | 1 | | (*a*3 + *b*3) | (*a* + *b*) | (753 + 247) | 1000 | |

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| 23. | (?) + 3699 + 1985 - 2047 = 31111 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 34748 | [**B.**](javascript:%20void%200;) | 27474 | | [**C.**](javascript:%20void%200;) | 30154 | [**D.**](javascript:%20void%200;) | 27574 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  *x* + 3699 + 1985 - 2047 = 31111  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   *x* + 3699 + 1985 = 31111 + 2047  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   *x* + 5684 = 33158  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   *x* = 33158 - 5684 = 27474. |

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| 24. | If the number 481 \* 673 is completely divisible by 9, then the smallest whole number in place of \* will be: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2 | [**B.**](javascript:%20void%200;) | 5 | | [**C.**](javascript:%20void%200;) | 6 | [**D.**](javascript:%20void%200;) | 7 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Sum of digits = (4 + 8 + 1 + *x* + 6 + 7 + 3) = (29 + x), which must be divisible by 9.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif   *x* = 7. |

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| 25. | The difference between the local value and the face value of 7 in the numeral 32675149 is |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 75142 | [**B.**](javascript:%20void%200;) | 64851 | | [**C.**](javascript:%20void%200;) | 5149 | [**D.**](javascript:%20void%200;) | 69993 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  (Local value of 7) - (Face value of 7) = (70000 - 7) = 69993 |

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| 26. | The difference between a positive proper fraction and its reciprocal is 9/20. The fraction is: |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 3 | | 5 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 3 | | 10 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 4 | | 5 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 4 | | 3 | |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**   |  |  |  |  | | --- | --- | --- | --- | | Let the required fraction be *x*. Then | 1 | - *x =* | 9 | | *x* | 20 |  |  |  |  |  | | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif | 1 - *x*2 | = | 9 | | *x* | 20 |   http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   20 - 20*x*2 = 9*x*  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   20*x*2 + 9*x* - 20 = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   20*x*2 + 25*x* - 16*x* - 20 = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   5*x*(4*x* + 5) - 4(4*x* + 5) = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   (4*x* + 5)(5*x* - 4) = 0   |  |  | | --- | --- | | x = | 4 | | 5 | |

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| 27. | On dividing a number by 56, we get 29 as remainder. On dividing the same number by 8, what will be the remainder ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4 | [**B.**](javascript:%20void%200;) | 5 | | [**C.**](javascript:%20void%200;) | 6 | [**D.**](javascript:%20void%200;) | 7 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  No answer description available for this question. |

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| 28. | If *n* is a natural number, then (6*n2* + 6*n*) is always divisible by: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 6 only | [**B.**](javascript:%20void%200;) | 6 and 12 both | | [**C.**](javascript:%20void%200;) | 12 only | [**D.**](javascript:%20void%200;) | by 18 only |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  (6*n*2 + 6*n*) = 6*n*(*n* + 1), which is always divisible by 6 and 12 both, since *n*(*n* + 1) is always even. |

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| 29. | 107 x 107 + 93 x 93 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 19578 | [**B.**](javascript:%20void%200;) | 19418 | | [**C.**](javascript:%20void%200;) | 20098 | [**D.**](javascript:%20void%200;) | 21908 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**   |  |  | | --- | --- | | 107 x 107 + 93 x 93 | = (107)2 + (93)2 | |  | = (100 + 7)2 + (100 - 7)2 | |  | = 2 x [(100)2 + 72]       [**Ref:** *(a + b)2 + (a - b)2 = 2(a2 + b2)*] | |  | = 20098 | |

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| 30. | What will be remainder when (6767 + 67) is divided by 68 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1 | [**B.**](javascript:%20void%200;) | 63 | | [**C.**](javascript:%20void%200;) | 66 | [**D.**](javascript:%20void%200;) | 67 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  (*x*n + 1) will be divisible by (*x* + 1) only when *n* is odd.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif(6767 + 1) will be divisible by (67 + 1)  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif(6767 + 1) + 66, when divided by 68 will give 66 as remainder |

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| 31. | On dividing a number by 5, we get 3 as remainder. What will the remainder when the square of the this number is divided by 5 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 1 | | [**C.**](javascript:%20void%200;) | 2 | [**D.**](javascript:%20void%200;) | 4 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Let the number be *x* and on dividing *x* by 5, we get *k* as quotient and 3 as remainder.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif    *x* = 5k + 3  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif    *x*2 = (5k + 3)2     = (25*k*2 + 30*k* + 9)     = 5(5*k*2 + 6*k* + 1) + 4  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifOn dividing *x*2 by 5, we get 4 as remainder. |

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| 32. | How many 3-digit numbers are completely divisible 6 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 149 | [**B.**](javascript:%20void%200;) | 150 | | [**C.**](javascript:%20void%200;) | 151 | [**D.**](javascript:%20void%200;) | 166 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  3-digit number divisible by 6 are: 102, 108, 114,... , 996  This is an A.P. in which *a* = 102, *d* = 6 and *l* = 996  Let the number of terms be *n*. Then *t*n = 996.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *a* + (*n* - 1)d = 996  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 102 + (*n* - 1) x 6 = 996  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 6 x (*n* - 1) = 894  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*n* - 1) = 149  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* = 150  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif Number of terms = 150. |

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| 33. | How many natural numbers are there between 23 and 100 which are exactly divisible by 6 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 8 | [**B.**](javascript:%20void%200;) | 11 | | [**C.**](javascript:%20void%200;) | 12 | [**D.**](javascript:%20void%200;) | 13 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Required numbers are 24, 30, 36, 42, ..., 96  This is an A.P. in which *a* = 24, *d* = 6 and *l* = 96  Let the number of terms in it be *n*.  Then tn = 96  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif  *a* + (*n* - 1)*d* = 96  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 24 + (*n* - 1) x 6 = 96  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*n* - 1) x 6 = 72  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*n* - 1) = 12  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* = 13  Required number of numbers = 13. |

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| 34. | How many of the following numbers are divisible by 3 but not by 9 ? 2133, 2343, 3474, 4131, 5286, 5340, 6336, 7347, 8115, 9276 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 5 | [**B.**](javascript:%20void%200;) | 6 | | [**C.**](javascript:%20void%200;) | 7 | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Marking (/) those which are are divisible by 3 by not by 9 and the others by (X), by taking the sum of digits, we get:s  2133 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 9 (X)  2343 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 12 (/)  3474 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 18 (X)  4131 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 9 (X)  5286 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 21 (/)  5340 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 12 (/)  6336 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 18 (X)  7347 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 21 (/)  8115 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 15 (/)  9276 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif 24 (/)  Required number of numbers = 6. |

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| 35. | |  |  | | --- | --- | | (963 + 476)2 + (963 - 476)2 | = ? | | (963 x 963 + 476 x 476) | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1449 | [**B.**](javascript:%20void%200;) | 497 | | [**C.**](javascript:%20void%200;) | 2 | [**D.**](javascript:%20void%200;) | 4 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Given Exp. = | (*a* + *b*)2 + (*a* - *b*)2 | = | 2(*a*2 + *b*2) | = 2 | | (*a*2 + *b*2) | (*a*2 + *b*2) |  | |

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| 36. | How many 3 digit numbers are divisible by 6 in all ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 149 | [**B.**](javascript:%20void%200;) | 150 | | [**C.**](javascript:%20void%200;) | 151 | [**D.**](javascript:%20void%200;) | 166 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Required numbers are 102, 108, 114, ... , 996  This is an A.P. in which *a* = 102, *d* = 6 and *l* = 996  Let the number of terms be *n*. Then,  *a* + (*n* - 1)*d* = 996  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 102 + (*n* - 1) x 6 = 996  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 6 x (*n* - 1) = 894  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*n* - 1) = 149  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* = 150. |

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| 37. | A 3-digit number 4*a*3 is added to another 3-digit number 984 to give a 4-digit number 13*b*7, which is divisible by 11. Then, (*a* + *b*) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 10 | [**B.**](javascript:%20void%200;) | 11 | | [**C.**](javascript:%20void%200;) | 12 | [**D.**](javascript:%20void%200;) | 15 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  4 *a* 3 |  9 8 4 } ==> *a* + 8 = *b* ==> *b* - *a* = 8  13 *b* 7 |  Also, 13 *b*7 is divisible by 11   http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   (7 + 3) - (*b* + 1) = (9 - *b*)  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   (9 - *b*) = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   *b* = 9  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif (*b* = 9 and *a* = 1)    http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*a* + *b*) = 10. |

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| 38. | 8597 - ? = 7429 - 4358 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 5426 | [**B.**](javascript:%20void%200;) | 5706 | | [**C.**](javascript:%20void%200;) | 5526 | [**D.**](javascript:%20void%200;) | 5476 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  7429 Let 8597 - x = 3071  -4358 Then, x = 8597 - 3071  ---- = 5526  3071  ---- |

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| 39. | The smallest prime number is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1 | [**B.**](javascript:%20void%200;) | 2 | | [**C.**](javascript:%20void%200;) | 3 | [**D.**](javascript:%20void%200;) | 4 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  The smallest prime number is 2. |

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| 40. | (12345679 x 72) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 88888888 | [**B.**](javascript:%20void%200;) | 888888888 | | [**C.**](javascript:%20void%200;) | 898989898 | [**D.**](javascript:%20void%200;) | 9999999998 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  | | --- | --- | | 12345679 x 72 | = 12345679 x (70 +2) | |  | = 12345679 x 70 + 12345679 x 2 | |  | = 864197530 + 24691358 | |  | = 888888888 | |

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| 41. | On dividing a number by 357, we get 39 as remainder. On dividing the same number 17, what will be the remainder ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 3 | | [**C.**](javascript:%20void%200;) | 5 | [**D.**](javascript:%20void%200;) | 11 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Let *x* be the number and *y* be the quotient. Then,  *x* = 357 x *y* + 39    = (17 x 21 x *y*) + (17 x 2) + 5    = 17 x (21*y* + 2) + 5)  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifRequired remainder = 5. |

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| 42. | If the product 4864 x 9 P 2 is divisible by 12, then the value of P is: |
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| 43. | Which one of the following is the common factor of (4743 + 4343) and (4747 + 4347) ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | (47 - 43) | [**B.**](javascript:%20void%200;) | (47 + 43) | | [**C.**](javascript:%20void%200;) | (4743 + 4343) | [**D.**](javascript:%20void%200;) | None of these |   [**Answer & Explanation**](javascript:%20void%200;)  **Answer:** Option **B**  **Explanation:**  When *n* is odd, (*xn* + *an*) is always divisible by (*x* + *a*).  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifEach one of (4743 + 4343) and (4747 + 4343) is divisible by (47 + 43). |

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| 44. | -84 x 29 + 365 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2436 | [**B.**](javascript:%20void%200;) | 2801 | | [**C.**](javascript:%20void%200;) | -2801 | [**D.**](javascript:%20void%200;) | -2071 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**   |  |  | | --- | --- | | Given Exp. | = -84 x (30 - 1) + 365 | |  | = -(84 x 30) + 84 + 365 | |  | = -2520 + 449 | |  | = -2071 | |

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| 45. | A number when divided by 296 leaves 75 as remainder. When the same number is divided by 37, the remainder will be: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1 | [**B.**](javascript:%20void%200;) | 2 | | [**C.**](javascript:%20void%200;) | 8 | [**D.**](javascript:%20void%200;) | 11 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Let *x* = 296*q* + 75     = (37 x 8*q* + 37 x 2) + 1     = 37 (8*q* + 2) + 1  Thus, when the number is divided by 37, the remainder is 1. |

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| 46. | In dividing a number by 585, a student employed the method of short division. He divided the number successively by 5, 9 and 13 (factors 585) and got the remainders 4, 8, 12 respectively. If he had divided the number by 585, the remainder would have been |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 24 | [**B.**](javascript:%20void%200;) | 144 | | [**C.**](javascript:%20void%200;) | 292 | [**D.**](javascript:%20void%200;) | 584 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  5 | *x* *z* = 13 x 1 + 12 = 25  --------------  9 | *y* - 4 *y* = 9 x *z* + 8 = 9 x 25 + 8 = 233  --------------  13| *z* - 8 *x* = 5 x *y* + 4 = 5 x 233 + 4 = 1169  --------------  | 1 -12    585) 1169 (1  585  ---  584  ---    Therefore, on dividing the number by 585, remainder = 584. |

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| 47. | In a division sum, the divisor is 10 times the quotient and 5 times the remainder. If the remainder is 46, what is the dividend ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4236 | [**B.**](javascript:%20void%200;) | 4306 | | [**C.**](javascript:%20void%200;) | 4336 | [**D.**](javascript:%20void%200;) | 5336 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Divisor = (5 x 46) = 230   |  |  |  | | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif 10 x Quotient = 230    http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif = | 230 | = 23 | | 10 |   Dividend = (Divisor x Quotient) + Remainder      = (230 x 23) + 46      = 5290 + 46      = 5336. |

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| 48. | 4500 x ? = 3375 |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 2 | | 5 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 3 | | 4 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 1 | | 4 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 3 | | 5 | | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  |  |  | | --- | --- | --- | --- | | 4500 x *x* = 3375   http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   *x* = | 337575 | = | 3 | | 4500100 | 4 | |

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| 49. | What smallest number should be added to 4456 so that the sum is completely divisible by 6 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4 | [**B.**](javascript:%20void%200;) | 3 | | [**C.**](javascript:%20void%200;) | 2 | [**D.**](javascript:%20void%200;) | 1 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  6) 4456 (742  42  ---  25  24 Therefore, Required number = (6 - 4) = 2.  ---  16  12  ---  4 |

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| 50. | What least number must be subtracted from 13601, so that the remainder is divisible by 87 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 23 | [**B.**](javascript:%20void%200;) | 31 | | [**C.**](javascript:%20void%200;) | 29 | [**D.**](javascript:%20void%200;) | 37 | | [**E.**](javascript:%20void%200;) | 49 |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  87) 13601 (156  87  ----  490  435  ----  551  522  ---  29  ---    Therefore, the required number = 29. |

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| 51. | 476 \*\* 0 is divisible by both 3 and 11. The non-zero digits in the hundred's and ten's places are respectively: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 7 and 4 | [**B.**](javascript:%20void%200;) | 7 and 5 | | [**C.**](javascript:%20void%200;) | 8 and 5 | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Let the given number be 476 *xy* 0.  Then (4 + 7 + 6 + *x* + *y* + 0) = (17 + *x* + *y*) must be divisible by 3.  And, (0 + *x* + 7) - (*y* + 6 + 4) = (*x* - *y* -3) must be either 0 or 11.  *x* - *y* - 3 = 0   http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *y* = *x* - 3  (17 + *x* + *y*) = (17 + *x* + *x* - 3) = (2*x* + 14)  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *x*= 2 or *x* = 8.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *x* = 8 and *y* = 5. |

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| 52. | If the number 97215 \* 6 is completely divisible by 11, then the smallest whole number in place of \* will be: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3 | [**B.**](javascript:%20void%200;) | 2 | | [**C.**](javascript:%20void%200;) | 1 | [**D.**](javascript:%20void%200;) | 5 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Given number = 97215*x*6  (6 + 5 + 2 + 9) - (*x* + 1 + 7) = (14 - x), which must be divisible by 11.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif  *x* = 3 |

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| 53. | (112 + 122 + 132 + ... + 202) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 385 | [**B.**](javascript:%20void%200;) | 2485 | | [**C.**](javascript:%20void%200;) | 2870 | [**D.**](javascript:%20void%200;) | 3255 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  (112 + 122 + 132 + ... + 202) = (12 + 22 + 32 + ... + 202) - (12 + 22 + 32 + ... + 102)   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-obracket-h1.gif | **Ref:** (12 + 22 + 32 + ... + *n*2) = | 1 | *n*(*n* + 1)(2*n* + 1) | http://www.indiabix.com/_files/images/aptitude/1-sym-cbracket-h1.gif |  | | 6 |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | = | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 20 x 21 x 41 | - | 10 x 11 x 21 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | | 6 | 6 |   = (2870 - 385)  = 2485. |

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| 54. | If the number 5 \* 2 is divisible by 6, then \* = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2 | [**B.**](javascript:%20void%200;) | 3 | | [**C.**](javascript:%20void%200;) | 6 | [**D.**](javascript:%20void%200;) | 7 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  6 = 3 x 2. Clearly, 5 \* 2 is divisible by 2. Replace \* by *x*.  Then, (5 + *x* + 2) must be divisible by 3. So, *x* = 2. |

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| 55. | Which of the following numbers will completely divide (4915 - 1) ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 8 | [**B.**](javascript:%20void%200;) | 14 | | [**C.**](javascript:%20void%200;) | 46 | [**D.**](javascript:%20void%200;) | 50 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  (*x*n - 1) will be divisibly by (*x* + 1) only when *n* is even.  (4915 - 1) = {(72)15 - 1} = (730 - 1), which is divisible by (7 +1), *i.e.*, 8. |

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| 56. | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | 9 + | 3 | + 7 + | 2 | - | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 9 + | 1 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | = ? | | 4 | 17 | 15 | |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  |  | | --- | --- | | 7 + | 719 | | 1020 | | [**B.**](javascript:%20void%200;) | |  |  | | --- | --- | | 9 + | 817 | | 1020 | | | [**C.**](javascript:%20void%200;) | |  |  | | --- | --- | | 9 + | 719 | | 1020 | | [**D.**](javascript:%20void%200;) | |  |  | | --- | --- | | 7 + | 817 | | 1020 | | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Given sum | |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | | = 9 + | 3 | + 7 + | 2 | - | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 9 + | 1 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | | 4 | 17 | 15 | | |  | |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | = (9 + 7 - 9) + | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 3 | + | 2 | - | 1 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | | 4 | 17 | 15 | | |  | |  |  | | --- | --- | | = 7 + | 765 + 120 - 68 | | 1020 | | |  | |  |  | | --- | --- | | = 7 + | 817 | | 1020 | | |

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| 57. | |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 - | 1 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | + | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 - | 2 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | + | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 - | 3 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | + ... up to n terms = ? | | *n* | *n* | *n* | |
| |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  |  | | --- | --- | | 1 | *n* | | 2 | | [**B.**](javascript:%20void%200;) | |  |  | | --- | --- | | 1 | (*n* - 1) | | 2 | | | [**C.**](javascript:%20void%200;) | |  |  | | --- | --- | | 1 | *n*(*n* - 1) | | 2 | | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | Given sum | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | = (1 + 1 + 1 + ... to *n* terms) | - | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 | + | 2 | + | 3 | + ... to *n* terms | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | | n | n | n | | |  | |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | = *n* - | *n* | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 | + 1 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | [ **Ref**: *n*th terms = (*n*/*n*) = 1] | | 2 | *n* |  | | |  | |  |  | | --- | --- | | = *n* - | *n* + 1 | | 2 | | |  | |  |  |  | | --- | --- | --- | | = | 1 | (*n* - 1) | | 2 | | |

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| 58. | On dividing 2272 as well as 875 by 3-digit number N, we get the same remainder. The sum of the digits of N is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 10 | [**B.**](javascript:%20void%200;) | 11 | | [**C.**](javascript:%20void%200;) | 12 | [**D.**](javascript:%20void%200;) | 13 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Clearly, (2272 - 875) = 1397, is exactly divisible by N.  Now, 1397 = 11 x 127  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif The required 3-digit number is 127, the sum of whose digits is 10. |

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| 59. | A boy multiplied 987 by a certain number and obtained 559981 as his answer. If in the answer both 9 are wrong and the other digits are correct, then the correct answer would be: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 553681 | [**B.**](javascript:%20void%200;) | 555181 | | [**C.**](javascript:%20void%200;) | 555681 | [**D.**](javascript:%20void%200;) | 556581 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  987 = 3 x 7 x 47  So, the required number must be divisible by each one of 3, 7, 47  553681 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif (Sum of digits = 28, not divisible by 3)  555181 http://www.indiabix.com/_files/images/aptitude/1-sym-arr.gif (Sum of digits = 25, not divisible by 3)  555681 is divisible by 3, 7, 47. |

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| 60. | How many prime numbers are less than 50 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 16 | [**B.**](javascript:%20void%200;) | 15 | | [**C.**](javascript:%20void%200;) | 14 | [**D.**](javascript:%20void%200;) | 18 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Prime numbers less than 50 are: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47  Their number is 15 |

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| 61. | When a number is divided by 13, the remainder is 11. When the same number is divided by 17, then remainder is 9. What is the number ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 339 | [**B.**](javascript:%20void%200;) | 349 | | [**C.**](javascript:%20void%200;) | 369 | [**D.**](javascript:%20void%200;) | Data inadequate |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  *x* = 13*p* + 11 and *x* = 17*q* + 9  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif 13*p* + 11 = 17*q* + 9  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 17*q* - 13*p* = 2   |  |  | | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *q =* | 2 + 13*p* | | 17 |  |  |  |  | | --- | --- | --- | | The least value of *p* for which *q =* | 2 + 13*p* | is a whole number is *p* = 26 | | 17 |   http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif *x* = (13 x 26 + 11)     = (338 + 11)    = 349 |

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| 62. | (51 + 52 + 53 + ... + 100) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2525 | [**B.**](javascript:%20void%200;) | 2975 | | [**C.**](javascript:%20void%200;) | 3225 | [**D.**](javascript:%20void%200;) | 3775 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Sn = (1 + 2 + 3 + ... + 50 + 51 + 52 + ... + 100) - (1 + 2 + 3 + ... + 50)   |  |  |  |  |  | | --- | --- | --- | --- | --- | | = | 100 | x (1 + 100) - | 50 | x (1 + 50) | | 2 | 2 |       = (50 x 101) - (25 x 51)      = (5050 - 1275)      = 3775. |

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| 63. | (800 ÷ 64) x (1296 ÷36) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 420 | [**B.**](javascript:%20void%200;) | 460 | | [**C.**](javascript:%20void%200;) | 500 | [**D.**](javascript:%20void%200;) | 540 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **E**  **Explanation:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Given Exp. = | 800 | x | 1296 | = 450 | | 64 | 36 | |

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| 64. | Which natural number is nearest to 8485, which is completely divisible by 75 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 8475 | [**B.**](javascript:%20void%200;) | 8500 | | [**C.**](javascript:%20void%200;) | 8550 | [**D.**](javascript:%20void%200;) | 8525 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  On dividing, we get  75) 8485 (113  75  ---  98  75  ----  235  225  ---  10  ---    Required number = (8485 - 10) // Because 10 < (75 - 10)  = 8475. |

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| 65. | If the number 42573 \* is exactly divisible by 72, then the minimum value of \* is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4 | [**B.**](javascript:%20void%200;) | 5 | | [**C.**](javascript:%20void%200;) | 6 | [**D.**](javascript:%20void%200;) | 7 | | [**E.**](javascript:%20void%200;) | 8 |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  72 = 9 x8, where 9 and 8 are co-prime.  The minimum value of x for which 73*x* for which 73*x* is divisible by 8 is, *x* = 6.  Sum of digits in 425736 = (4 + 2 + 5 + 7 + 3 + 6) = 27, which is divisible by 9.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifRequired value of \* is 6. |

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| 66. | Which of the following numbers is divisible by each one of 3, 7, 9 and 11 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 639 | [**B.**](javascript:%20void%200;) | 2079 | | [**C.**](javascript:%20void%200;) | 3791 | [**D.**](javascript:%20void%200;) | 37911 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  639 is not divisible by 7  2079 is divisible by each of 3, 7, 9, 11. |

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| 67. | Which natural number is nearest to 9217, which is completely divisible by 88 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 9152 | [**B.**](javascript:%20void%200;) | 9240 | | [**C.**](javascript:%20void%200;) | 9064 | [**D.**](javascript:%20void%200;) | 9184 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  On dividing we get,  88) 9217 (104  88  ----  417  352  ----  65  ----    Therefore, Required number = 9217 + (88 - 65) // Because (88 - 65) < 65.  = 9217 + 23  = 9240. |

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| 68. | (4300731) - ? = 2535618 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1865113 | [**B.**](javascript:%20void%200;) | 1775123 | | [**C.**](javascript:%20void%200;) | 1765113 | [**D.**](javascript:%20void%200;) | 1675123 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Let 4300731 - *x* = 2535618  Then *x*, = 4300731 - 2535618 = 1765113 |

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| 69. | *n* is a whole number which when divided by 4 gives 3 as remainder. What will be the remainder when 2*n* is divided by 4 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3 | [**B.**](javascript:%20void%200;) | 2 | | [**C.**](javascript:%20void%200;) | 1 | [**D.**](javascript:%20void%200;) | 0 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Let *n* = 4*q* + 3. Then 2*n* = 8*q* + 6   = 4(2*q* + 1 ) + 2.  Thus, when 2*n* is divided by 4, the remainder is 2. |

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| 70. | |  |  | | --- | --- | | (489 + 375)2 - (489 - 375)2 | = ? | | (489 x 375) | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 144 | [**B.**](javascript:%20void%200;) | 864 | | [**C.**](javascript:%20void%200;) | 2 | [**D.**](javascript:%20void%200;) | 4 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Given Exp. = | (*a* + *b*)2 - (*a* - *b*)2 | = | 4*ab* | = 4 | | *ab* | *ab* |  | |

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| 71. | 397 x 397 + 104 x 104 + 2 x 397 x 104 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 250001 | [**B.**](javascript:%20void%200;) | 251001 | | [**C.**](javascript:%20void%200;) | 260101 | [**D.**](javascript:%20void%200;) | 261001 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  | | --- | --- | | Given Exp. | = (397)2 + (104)2 + 2 x 397 x 104 | |  | = (397 + 104)2 | |  | = (501)2 = (500 + 1)2 | |  | = (5002) + (1)2 + (2 x 500 x 1) | |  | = 250000 + 1 + 1000 | |  | = 251001 | |

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| 72. | (35423 + 7164 + 41720) - (317 x 89) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 28213 | [**B.**](javascript:%20void%200;) | 84307 | | [**C.**](javascript:%20void%200;) | 50694 | [**D.**](javascript:%20void%200;) | 56094 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  35423 317 x 89 = 317 x (90 -1 )  + 7164 = (317 x 90 - 317)  + 41720 = (28530 - 317)  ----- = 28213  84307  - 28213  -----  56094  ----- |

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| 73. | (*x*n - *a*n) is completely divisible by (*x* - *a*), when |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | *n* is any natural number | [**B.**](javascript:%20void%200;) | *n* is an even natural number | | [**C.**](javascript:%20void%200;) | *n* is and odd natural number | [**D.**](javascript:%20void%200;) | *n* is prime |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  For every natural number *n*, (*xn* - *an*) is completely divisible by (*x* - *a*). |

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| 74. | Which one of the following numbers is completely divisible by 45? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 181560 | [**B.**](javascript:%20void%200;) | 331145 | | [**C.**](javascript:%20void%200;) | 202860 | [**D.**](javascript:%20void%200;) | 2033555 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  45 = 5 x 9, where 5 and 9 are co-primes.  Unit digit must be 0 or 5 and sum of digits must be divisible by 9.  Among given numbers, such number is 202860. |

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| 75. | Which of the following numbers will completely divide (325 + 326 + 327 + 328) ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 11 | [**B.**](javascript:%20void%200;) | 16 | | [**C.**](javascript:%20void%200;) | 25 | [**D.**](javascript:%20void%200;) | 30 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  (325 + 326 + 327 + 328) = 325 x (1 + 3 + 32 + 33) = 325 x 40       = 324 x 3 x 4 x 10       = (324 x 4 x 30), which is divisible by30. |

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| 76. | A number when divide by 6 leaves a remainder 3. When the square of the number is divided by 6, the remainder is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 1 | | [**C.**](javascript:%20void%200;) | 2 | [**D.**](javascript:%20void%200;) | 3 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Let *x* = 6*q* + 3.  Then, *x*2 = (6*q* + 3)2     = 36*q*2 + 36*q* + 9     = 6(6*q*2 + 6*q* + 1) + 3  Thus, when *x*2 is divided by 6, then remainder = 3. |

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| 77. | The sum of the two numbers is 12 and their product is 35. What is the sum of the reciprocals of these numbers ? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 12 | | 35 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 1 | | 35 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 35 | | 8 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 7 | | 32 | |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Let the numbers be *a* and *b*. Then, *a* + *b* = 12 and *ab* = 35.   |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif | *a* + *b* | = | 12 | http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 | + | 1 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | = | 12 | | *ab* | 35 | *b* | *a* | 35 |  |  |  | | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif Sum of reciprocals of given numbers = | 12 | | 35 | |

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| 78. | What will be remainder when 17200 is divided by 18 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 17 | [**B.**](javascript:%20void%200;) | 16 | | [**C.**](javascript:%20void%200;) | 1 | [**D.**](javascript:%20void%200;) | 2 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  When *n* is even. (*xn* - *an*) is completely divisibly by (*x* + *a*)  (17200 - 1200) is completely divisible by (17 + 1), *i.e.,* 18.  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif    (17200 - 1) is completely divisible by 18.  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif    On dividing 17200 by 18, we get 1 as remainder. |

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| 79. | If 1400 x *x* = 1050. Then, *x* = ? |
| |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | |  | | --- | | 1 | | 4 | | [**B.**](javascript:%20void%200;) | |  | | --- | | 3 | | 5 | | | [**C.**](javascript:%20void%200;) | |  | | --- | | 2 | | 3 | | [**D.**](javascript:%20void%200;) | |  | | --- | | 3 | | 4 | | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**   |  |  |  |  | | --- | --- | --- | --- | | 1400 x *x* = 1050   http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   *x* = | 1050 | = | 3 | | 1400 | 4 | |

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| 80. | (12 + 22 + 32 + ... + 102) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 330 | [**B.**](javascript:%20void%200;) | 345 | | [**C.**](javascript:%20void%200;) | 365 | [**D.**](javascript:%20void%200;) | 385 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**   |  |  |  | | --- | --- | --- | | We know that (12 + 22 + 32 + ... + *n*2) = | 1 | *n*(*n* + 1)(2*n* + 1) | | 6 |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | Putting *n* = 10, required sum = | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 1 | x 10 x 11 x 21 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | = 385 | | 6 | |

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| 81. | The difference of the squares of two consecutive even integers is divisible by which of the following integers ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3 | [**B.**](javascript:%20void%200;) | 4 | | [**C.**](javascript:%20void%200;) | 6 | [**D.**](javascript:%20void%200;) | 7 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Let the two consecutive even integers be 2*n* and (2*n* + 2). Then,  (2*n* + 2)2 = (2*n* + 2 + 2*n*)(2*n* + 2 - 2*n*)       = 2(4*n* + 2)       = 4(2*n* + 1), which is divisible by 4. |

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| 82. | Which one of the following is a prime number ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 119 | [**B.**](javascript:%20void%200;) | 187 | | [**C.**](javascript:%20void%200;) | 247 | [**D.**](javascript:%20void%200;) | 551 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **E**  **Explanation:**  551 > 22  All prime numbers less than 24 are : 2, 3, 5, 7, 11, 13, 17, 19, 23.  119 is divisible by 7; 187 is divisible by 11; 247 is divisible by 13 and 551 is divisible by 19.  So, none of the given numbers is prime. |

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| 83. | The sum all even natural numbers between 1 and 31 is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 16 | [**B.**](javascript:%20void%200;) | 128 | | [**C.**](javascript:%20void%200;) | 240 | [**D.**](javascript:%20void%200;) | 512 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Required sum = (2 + 4 + 6 + ... + 30)  This is an A.P. in which *a* = 2, *d* = (4 - 2) = 2 and *l* = 30.  Let the number of terms be *n*. Then,  tn = 30 http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif    *a* + (*n* - 1)*d* = 30  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 2 + (*n* - 1) x 2 = 30  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* - 1 = 14  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* = 15   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifSn = | *n* | (*a* + *l*) | = | 15 | x (2 + 30)   = 240. | | 2 | 2 | |

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| 84. | The difference between the place value and the face value of 6 in the numeral 856973 is |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 973 | [**B.**](javascript:%20void%200;) | 6973 | | [**C.**](javascript:%20void%200;) | 5994 | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  (Place value of 6) - (Face value of 6) = (6000 - 6) = 5994 |

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| 85. | If *a* and *b* are odd numbers, then which of the following is even ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | *a* + *b* | [**B.**](javascript:%20void%200;) | *a* + *b* + 1 | | [**C.**](javascript:%20void%200;) | *ab* | [**D.**](javascript:%20void%200;) | *ab* + 2 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  The sum of two odd number is even. So, a + b is even. |

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| 86. | Which one of the following numbers is completely divisible by 99? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3572404 | [**B.**](javascript:%20void%200;) | 135792 | | [**C.**](javascript:%20void%200;) | 913464 | [**D.**](javascript:%20void%200;) | 114345 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  99 = 11 x 9, where 11 and 9 are co-prime.  By hit and trial, we find that 114345 is divisibleby 11 as well as 9. So, it is divisible by 99. |

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| 87. | The sum of how many terms of the series 6 + 12 + 18 + 24 + ... is 1800 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 16 | [**B.**](javascript:%20void%200;) | 24 | | [**C.**](javascript:%20void%200;) | 20 | [**D.**](javascript:%20void%200;) | 18 | | [**E.**](javascript:%20void%200;) | 22 |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  This is an A.P. in which *a* = 6, *d* = 6 and Sn = 1800   |  |  |  | | --- | --- | --- | | Then, | *n* | [2*a* + (*n* - 1)*d*] = 1800 | | 2 |  |  |  |  | | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif | *n* | [2 x 6 + (*n* - 1) x 6] = 1800 | | 2 |   http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 3*n* (*n* + 1) = 1800  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n(n + 1)* = 600  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n*2 + *n* - 600 = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n*2 + 25*n* - 24*n* - 600 = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n*(*n* + 25) - 24(*n* + 25) = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*n* + 25)(*n* - 24) = 0  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* = 24  Number of terms = 24. |

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| 88. | (51+ 52 + 53 + ... + 100) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2525 | [**B.**](javascript:%20void%200;) | 2975 | | [**C.**](javascript:%20void%200;) | 3225 | [**D.**](javascript:%20void%200;) | 3775 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  This is an A.P. in which *a* = 51, *l* = 100 and *n* = 50.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifSum = | *n* | (*a* + *l*) | = | 50 | x (51 + 100)   = (25 x 151)   = 3775. | | 2 | 2 | |

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| 89. | 1904 x 1904 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3654316 | [**B.**](javascript:%20void%200;) | 3632646 | | [**C.**](javascript:%20void%200;) | 3625216 | [**D.**](javascript:%20void%200;) | 3623436 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**   |  |  | | --- | --- | | 1904 x 1904 | = (1904)2 | |  | = (1900 + 4)2 | |  | = (1900)2 + (4)2 + (2 x 1900 x 4) | |  | = 3610000 + 16 + 15200. | |  | = 3625216. | |

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| 90. | What is the unit digit in(795 - 358)? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 4 | | [**C.**](javascript:%20void%200;) | 6 | [**D.**](javascript:%20void%200;) | 7 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Unit digit in 795 = Unit digit in [(74)23 x 73]  = Unit digit in [(Unit digit in(2401))23 x (343)]  = Unit digit in (123 x 343)  = Unit digit in (343)  = 3  Unit digit in 358 = Unit digit in [(34)14 x 32]  = Unit digit in [Unit digit in (81)14 x 32]  = Unit digit in [(1)14 x 32]  = Unit digit in (1 x 9)  = Unit digit in (9)  = 9  Unit digit in (795 - 358) = Unit digit in (343 - 9) = Unit digit in (334) = 4.  So, Option B is the answer. |

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| 91. | Which one of the following is a prime number ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 161 | [**B.**](javascript:%20void%200;) | 221 | | [**C.**](javascript:%20void%200;) | 373 | [**D.**](javascript:%20void%200;) | 437 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  437 > 22  All prime numbers less than 22 are : 2, 3, 5, 7, 11, 13, 17, 19.  161 is divisible by 7, and 221 is divisible by 13.  373 is not divisible by any of the above prime numbers.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif373 is prime. |

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| 92. | The smallest 6 digit number exactly divisible by 111 is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 111111 | [**B.**](javascript:%20void%200;) | 110011 | | [**C.**](javascript:%20void%200;) | 100011 | [**D.**](javascript:%20void%200;) | 110101 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  The smallest 6-digit number 100000.  111) 100000 (900  999  -----  100  ---  Required number = 100000 + (111 - 100)  = 100011. |

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| 93. | The largest 5 digit number exactly divisible by 91 is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 99921 | [**B.**](javascript:%20void%200;) | 99918 | | [**C.**](javascript:%20void%200;) | 99981 | [**D.**](javascript:%20void%200;) | 99971 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Largest 5-digit number = 99999  91) 99999 (1098  91  ---  899  819  ----  809  728  ---  81  ---    Required number = (99999 - 81)  = 99918. |

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| 94. | |  |  | | --- | --- | | 768 x 768 x 768 + 232 x 232 x 232 | = ? | | 768 x 768 - 768 x 232 + 232 x 232 | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1000 | [**B.**](javascript:%20void%200;) | 536 | | [**C.**](javascript:%20void%200;) | 500 | [**D.**](javascript:%20void%200;) | 268 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  |  | | --- | --- | --- | | Given Exp. = | (*a*3 + *b*3) | = (*a* + *b*) = (768 + 232) = 1000 | | (*a*2 - *ab* + *b*2) | |

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| 95. | The smallest 5 digit number exactly divisible by 41 is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1004 | [**B.**](javascript:%20void%200;) | 10004 | | [**C.**](javascript:%20void%200;) | 10045 | [**D.**](javascript:%20void%200;) | 10025 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  The smallest 5-digit number = 10000.  41) 10000 (243  82  ---  180  164  ----  160  123  ---  37  ---  Required number = 10000 + (41 - 37)  = 10004. |

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| 96. | How many terms are there in the G.P. 3, 6, 12, 24, ... , 384 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 8 | [**B.**](javascript:%20void%200;) | 9 | | [**C.**](javascript:%20void%200;) | 10 | [**D.**](javascript:%20void%200;) | 11 | | [**E.**](javascript:%20void%200;) | 7 |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  |  | | --- | --- | --- | | Here *a* = 3 and *r* = | 6 | = 2. Let the number of terms be *n*. | | 3 |   Then, tn = 384   http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif  *arn*-1 = 384  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 3 x 2*n*- 1 = 384  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 2*n*-1 = 128 = 27  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* - 1 = 7  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* = 8  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif Number of terms = 8. |

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| 97. | If *x* and *y* are positive integers such that (3*x* + 7*y*) is a multiple of 11, then which of the following will be divisible by 11 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4*x* + 6*y* | [**B.**](javascript:%20void%200;) | *x* + *y* + 4 | | [**C.**](javascript:%20void%200;) | 9*x* + 4*y* | [**D.**](javascript:%20void%200;) | 4*x* - 9*y* |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  By hit and trial, we put *x* = 5 and *y* = 1 so that (3*x* + 7*y*) = (3 x 5 + 7 x 1) = 22, which is divisible by 11.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif (4*x* + 6*y*) = ( 4 x 5 + 6 x 1) = 26, which is not divisible by 11;  (*x* + *y* + 4 ) = (5 + 1 + 4) = 10, which is not divisible by 11;  (9*x* + 4*y*) = (9 x 5 + 4 x 1) = 49, which is not divisible by 11;  (4*x* - 9*y*) = (4 x 5 - 9 x 1) = 11, which is divisible by 11. |

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| 98. | 9548 + 7314 = 8362 + (?) |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 8230 | [**B.**](javascript:%20void%200;) | 8410 | | [**C.**](javascript:%20void%200;) | 8500 | [**D.**](javascript:%20void%200;) | 8600 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  9548 16862 = 8362 + *x*  + 7314 *x* = 16862 - 8362  ----- = 8500  16862  ----- |

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| 99. | In a division sum, the remainder is 0. As student mistook the divisor by 12 instead of 21 and obtained 35 as quotient. What is the correct quotient ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 12 | | [**C.**](javascript:%20void%200;) | 13 | [**D.**](javascript:%20void%200;) | 20 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Number = (12 x 35)  Correct Quotient = 420 ÷ 21 = 20 |

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| 100. | 2 + 22 + 23 + ... + 29 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2044 | [**B.**](javascript:%20void%200;) | 1022 | | [**C.**](javascript:%20void%200;) | 1056 | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  |  | | --- | --- | --- | | This is a G.P. in which *a* = 2, *r* = | 22 | = 2 and *n* = 9. | | 2 |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifSn = | *a*(*rn* - 1) | = | 2 x (29 - 1) | = 2 x (512 - 1)   = 2 x 511   = 1022. | | (*r* - 1) | (2 - 1) | |

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| 101. | The sum of even numbers between 1 and 31 is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 6 | [**B.**](javascript:%20void%200;) | 28 | | [**C.**](javascript:%20void%200;) | 240 | [**D.**](javascript:%20void%200;) | 512 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Let Sn = (2 + 4 + 6 + ... + 30). This is an A.P. in which *a* = 2, *d* = 2 and *l* = 30  Let the number of terms be *n.* Then,  *a* + (*n* - 1)*d* = 30  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif   2 + (*n* - 1) x 2 = 30  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif  *n* = 15.   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifSn = | n | (*a* + *l*) | = | 15 | x (2 + 30) = (15 x 16) = 240. | | 2 | 2 | |

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| 102. | If the number 91876 \* 2 is completely divisible by 8, then the smallest whole number in place of \* will be: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1 | [**B.**](javascript:%20void%200;) | 2 | | [**C.**](javascript:%20void%200;) | 3 | [**D.**](javascript:%20void%200;) | 4 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Then number 6*x*2 must be divisible by 8.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif   *x* = 3, as 632 is divisible 8. |

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| 103. | 2056 x 987 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1936372 | [**B.**](javascript:%20void%200;) | 2029272 | | [**C.**](javascript:%20void%200;) | 1896172 | [**D.**](javascript:%20void%200;) | 1926172 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  | | --- | --- | | 2056 x 987 | = 2056 x (1000 - 13) | |  | = 2056 x 1000 - 2056 x 13 | |  | = 2056000 - 26728 | |  | = 2029272. | |

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| 104. | On multiplying a number by 7, the product is a number each of whose digits is 3. The smallest such number is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 47619 | [**B.**](javascript:%20void%200;) | 47719 | | [**C.**](javascript:%20void%200;) | 48619 | [**D.**](javascript:%20void%200;) | 47649 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  By hit and trial, we find that  47619 x 7 = 333333. |

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| 105. | |  |  |  | | --- | --- | --- | | If 60% of | 3 | of a number is 36, then the number is: | | 5 | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 80 | [**B.**](javascript:%20void%200;) | 100 | | [**C.**](javascript:%20void%200;) | 75 | [**D.**](javascript:%20void%200;) | 90 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Let the number be *x*. Then   |  |  |  | | --- | --- | --- | | 60% of | 3 | of *x* = 36 | | 5 |  |  |  |  |  |  | | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif | 60 | x | 3 | x *x* = 36 | | 100 | 5 |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *x* = | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 36 x | 25 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | = 100 | | 9 |   http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif Required number = 100 |

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| 106. | If *x* and *y* are the two digits of the number 653*xy* such that this number is divisible by 80, then *x* + *y* = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2 or 6 | [**B.**](javascript:%20void%200;) | 4 | | [**C.**](javascript:%20void%200;) | 4 or 8 | [**D.**](javascript:%20void%200;) | 8 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  80 = 2 x 5 x 8  Since 653*xy* is divisible by 2 and 5 both, so *y* = 0.  Now, 653*x* is divisible by 8, so 13*x* should be divisible by 8.  This happens when *x* = 6.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif*x* + *y* = (6 + 0) = 6. |

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| 107. | The difference of the squares of two consecutive odd integers is divisible by which of the following integers ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3 | [**B.**](javascript:%20void%200;) | 6 | | [**C.**](javascript:%20void%200;) | 7 | [**D.**](javascript:%20void%200;) | 8 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Let the two consecutive odd integers be (2*n* + 1) and (2*n* + 3). Then,  (2*n* + 3)2 - (2*n* + 1)2 = (2*n* + 3 + 2*n* + 1) (2*n* + 3 - 2*n* - 1)       = (4*n* + 4) x 2       = 8(*n* + 1), which is divisible by 8. |

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| 108. | What is the unit digit in (4137)754? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1 | [**B.**](javascript:%20void%200;) | 3 | | [**C.**](javascript:%20void%200;) | 7 | [**D.**](javascript:%20void%200;) | 9 |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Unit digit in (4137)754 = Unit digit in {[(4137)4]188 x (4137)2}  =Unit digit in { 292915317923361 x 17114769 }  = (1 x 9) = 9 |

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| 109. | 587 x 999 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 586413 | [**B.**](javascript:%20void%200;) | 587523 | | [**C.**](javascript:%20void%200;) | 614823 | [**D.**](javascript:%20void%200;) | 615173 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  | | --- | --- | | 587 x 999 | = 587 x (1000 - 1) | |  | = 587 x 1000 - 587 x 1 | |  | = 587000 - 587 | |  | = 586413. | |

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| 110. | A number was divided successively in order by 4, 5 and 6. The remainders were respectively 2, 3 and 4. The number is: | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 214 | [**B.**](javascript:%20void%200;) | 476 | | [**C.**](javascript:%20void%200;) | 954 | [**D.**](javascript:%20void%200;) | 1908 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  4 | *x* *z* = 6 x 1 + 4 = 10  -----------  5 | *y* -2 *y* = 5 x *z* + 3 = 5 x 10 + 3 = 53  -----------  6 | *z* - 3 *x* = 4 x *y* + 2 = 4 x 53 + 2 = 214  -----------  | 1 - 4    Hence, required number = 214. | |
| 111. | | If (64)2 - (36)2 = 20 x *x*, then *x* = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 70 | [**B.**](javascript:%20void%200;) | 120 | | [**C.**](javascript:%20void%200;) | 180 | [**D.**](javascript:%20void%200;) | 140 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  20 x *x* = (64 + 36)(64 - 36) = 100 x 28   |  |  |  | | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif      *x* = | 100 x 28 | = 140 | | 20 | |

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| 112. | Which one of the following can't be the square of natural number ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 32761 | [**B.**](javascript:%20void%200;) | 81225 | | [**C.**](javascript:%20void%200;) | 42437 | [**D.**](javascript:%20void%200;) | 20164 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  The square of a natural number never ends in 7.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif42437 is not the square of a natural number. |

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| 113. | (22 + 42 + 62 + ... + 202) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 770 | [**B.**](javascript:%20void%200;) | 1155 | | [**C.**](javascript:%20void%200;) | 1540 | [**D.**](javascript:%20void%200;) | 385 x 385 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  (22 + 42 + 62 + ... + 202) = (1 x 2)2 + (2 x 2)2 + (2 x 3)2 + ... + (2 x 10)2  = (22 x 12) + (22 x 22) + (22 x 32) + ... + (22 x 102)  = 22 x [12 + 22 + 32 + ... + 102]   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-obracket-h1.gif | **Ref:** (12 + 22 + 32 + ... + *n*2) = | 1 | *n*(*n* + 1)(2*n* + 1) | http://www.indiabix.com/_files/images/aptitude/1-sym-cbracket-h1.gif |  | | 6 |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | = | http://www.indiabix.com/_files/images/aptitude/1-sym-oparen-h1.gif | 4 x | 1 | x 10 x 11 x 21 | http://www.indiabix.com/_files/images/aptitude/1-sym-cparen-h1.gif | | 6 |   = (4 x 5 x 77)  = 1540. |

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| 114. | |  |  | | --- | --- | | 854 x 854 x 854 - 276 x 276 x 276 | = ? | | 854 x 854 + 854 x 276 + 276 x 276 | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1130 | [**B.**](javascript:%20void%200;) | 578 | | [**C.**](javascript:%20void%200;) | 565 | [**D.**](javascript:%20void%200;) | 1156 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  |  | | --- | --- | --- | | Given Exp. = | (*a*3 - *b*3) | = (*a* - *b*) = (854 - 276) = 578 | | (*a*2 + *ab* + *b*2) | |

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| 115. | 35 + 15 x 1.5 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 85 | [**B.**](javascript:%20void%200;) | 51.5 | | [**C.**](javascript:%20void%200;) | 57.5 | [**D.**](javascript:%20void%200;) | 5.25 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Given Exp. = 35 + 15 x | 3 | = 35 + | 45 | = 35 + 22.5   = 57.5 | | 2 | 2 | |

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| 116. | The sum of first 45 natural numbers is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1035 | [**B.**](javascript:%20void%200;) | 1280 | | [**C.**](javascript:%20void%200;) | 2070 | [**D.**](javascript:%20void%200;) | 2140 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Let Sn = (1 + 2 + 3 + ... + 45)  This is an A.P. in which *a* = 1, *d* = 1, *n* = 45 and *l* = 45   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifSn = | *n* | (*a* + *l*) | = | 45 | x (1 + 45)   = (45 x 23)   = 1035 | | 2 | 2 |   Required sum = 1035. |

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| 117. | 666 ÷ 6 ÷ 3 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 37 | [**B.**](javascript:%20void%200;) | 333 | | [**C.**](javascript:%20void%200;) | 111 | [**D.**](javascript:%20void%200;) | 84 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  |  |  |  | | --- | --- | --- | --- | --- | | Given Exp. = 666 x | 1 | x | 1 | = 37 | | 6 | 3 | |

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| 118. | The sum of all two digit numbers divisible by 5 is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1035 | [**B.**](javascript:%20void%200;) | 1245 | | [**C.**](javascript:%20void%200;) | 1230 | [**D.**](javascript:%20void%200;) | 945 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  Required numbers are 10, 15, 20, 25, ..., 95  This is an A.P. in which *a* = 10, *d* = 5 and *l* = 95.  tn = 95    http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif    *a* + (*n* - 1)*d* = 95  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif 10 + (*n* - 1) x 5 = 95  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*n* - 1) x 5 = 85  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif (*n* - 1) = 17  http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif *n* = 18   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gifRequuired Sum = | *n* | (*a* + *l*) | = | 18 | x (10 + 95)   = (9 x 105)   = 945. | | 2 | 2 | |

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| 119. | The difference between the place values of two sevens in the numeral 69758472 is |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 6993 | | [**C.**](javascript:%20void%200;) | 699930 | [**D.**](javascript:%20void%200;) | None of these |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Required difference = (700000 - 70) = 699930 |

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| 120. | On dividing a number by 68, we get 269 as quotient and 0 as remainder. On dividing the same number by 67, what will the remainder ? | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 0 | [**B.**](javascript:%20void%200;) | 1 | | [**C.**](javascript:%20void%200;) | 2 | [**D.**](javascript:%20void%200;) | 3 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Number = 269 x 68 + 0 = 18292  67) 18292 (273  134  ----  489  469  ----  202  201  ---  1  ---    Therefore, Required remainder = 1 | |
| 121. | | What is the unit digit in the product (365 x 659 x 771)? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1 | [**B.**](javascript:%20void%200;) | 2 | | [**C.**](javascript:%20void%200;) | 4 | [**D.**](javascript:%20void%200;) | 6 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Unit digit in 34 = 1 http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif Unit digit in (34)16 = 1  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif Unit digit in 365 = Unit digit in [ (34)16 x 3 ] = (1 x 3) = 3  Unit digit in 659 = 6  Unit digit in 74 http://www.indiabix.com/_files/images/aptitude/1-sym-imp.gif Unit digit in (74)17 is 1.  Unit digit in 771 = Unit digit in [(74)17 x 73] = (1 x 3) = 3  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif Required digit = Unit digit in (3 x 6 x 3) = 4. |

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| 122. | 3251 + 587 + 369 - ? = 3007 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1250 | [**B.**](javascript:%20void%200;) | 1300 | | [**C.**](javascript:%20void%200;) | 1375 | [**D.**](javascript:%20void%200;) | 1200 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  3251 Let 4207 - *x* = 3007  + 587 Then, *x* = 4207 - 3007 = 1200  + 369  ----  4207  ---- |

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| 123. | 7589 - ? = 3434 |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4242 | [**B.**](javascript:%20void%200;) | 4155 | | [**C.**](javascript:%20void%200;) | 1123 | [**D.**](javascript:%20void%200;) | 11023 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  Let 7589 -x = 3434  Then, *x* = 7589 - 3434 = 4155 |

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| 124. | 217 x 217 + 183 x 183 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 79698 | [**B.**](javascript:%20void%200;) | 80578 | | [**C.**](javascript:%20void%200;) | 80698 | [**D.**](javascript:%20void%200;) | 81268 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  | | --- | --- | | (217)2 + (183)2 | = (200 + 17)2 + (200 - 17)2 | |  | = 2 x [(200)2 + (17)2]       [**Ref:***(a + b)2 + (a - b)2 = 2(a2 + b2)]* | |  | = 2[40000 + 289] | |  | = 2 x 40289 | |  | = 80578. | |

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| 125. | The unit digit in the product (784 x 618 x 917 x 463) is: |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2 | [**B.**](javascript:%20void%200;) | 3 | | [**C.**](javascript:%20void%200;) | 4 | [**D.**](javascript:%20void%200;) | 5 |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**  Unit digit in the given product = Unit digit in (4 x 8 x 7 x 3) = (672) = 2 |

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| 126. | If the number 653 *xy* is divisible by 90, then (*x* + *y*) = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2 | [**B.**](javascript:%20void%200;) | 3 | | [**C.**](javascript:%20void%200;) | 4 | [**D.**](javascript:%20void%200;) | 6 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  90 = 10 x 9  Clearly, 653*xy* is divisible by 10, so *y* = 0  Now, 653*x*0 is divisible by 9.  So, (6 + 5 + 3 + *x* + 0) = (14 + *x*) is divisible by 9. So, *x* = 4.  Hence, (*x* + *y*) = (4 + 0) = 4. |

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| 127. | 3897 x 999 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3883203 | [**B.**](javascript:%20void%200;) | 3893103 | | [**C.**](javascript:%20void%200;) | 3639403 | [**D.**](javascript:%20void%200;) | 3791203 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  | | --- | --- | | 3897 x 999 | = 3897 x (1000 - 1) | |  | = 3897 x 1000 - 3897 x 1 | |  | = 3897000 - 3897 | |  | = 3893103. | |

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| 128. | What is the unit digit in 7105 ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 1 | [**B.**](javascript:%20void%200;) | 5 | | [**C.**](javascript:%20void%200;) | 7 | [**D.**](javascript:%20void%200;) | 9 |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**  Unit digit in 7105 = Unit digit in [ (74)26 x 7 ]  But, unit digit in (74)26 = 1  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif Unit digit in 7105 = (1 x 7) = 7 |

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| 129. | Which of the following numbers will completely divide (461 + 462 + 463 + 464) ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 3 | [**B.**](javascript:%20void%200;) | 10 | | [**C.**](javascript:%20void%200;) | 11 | [**D.**](javascript:%20void%200;) | 13 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  (461 + 462 + 463 + 464) = 461 x (1 + 4 + 42 + 43) = 461 x 85       = 460 x (4 x 85)       = (460 x 340), which is divisible by 10. |

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| 130. | 106 x 106 - 94 x 94 = ? | |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2400 | [**B.**](javascript:%20void%200;) | 2000 | | [**C.**](javascript:%20void%200;) | 1904 | [**D.**](javascript:%20void%200;) | 1906 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **A**  **Explanation:**   |  |  | | --- | --- | | 106 x 106 - 94 x 94 | = (106)2 - (94)2 | |  | = (106 + 94)(106 - 94)    [**Ref:** *(a2 - b2) = (a + b)(a - b)*] | |  | = (200 x 12) | |  | = 2400. | | |
| 131. | | 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.**](javascript:%20void%200;) | 1, 2 | [**B.**](javascript:%20void%200;) | 2, 3 | | [**C.**](javascript:%20void%200;) | 3, 2 | [**D.**](javascript:%20void%200;) | 4, 1 |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  4 | *x* *y* = (5 x 1 + 4) = 9  --------  5 | *y* -1 *x* = (4 x *y* + 1) = (4 x 9 + 1) = 37  --------  | 1 -4  Now, 37 when divided successively by 5 and 4, we get  5 | 37  ---------  4 | 7 - 2  ---------  | 1 - 3    Respective remainders are 2 and 3. |

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| 132. | 8796 x 223 + 8796 x 77 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2736900 | [**B.**](javascript:%20void%200;) | 2638800 | | [**C.**](javascript:%20void%200;) | 2658560 | [**D.**](javascript:%20void%200;) | 2716740 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  | | --- | --- | | 8796 x 223 + 8796 x 77 | = 8796 x (223 + 77)   [**Ref:** *By Distributive Law*] | |  | = (8796 x 300) | |  | = 2638800 | |

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| 133. | 8988 ÷ 8 ÷ 4 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 4494 | [**B.**](javascript:%20void%200;) | 561.75 | | [**C.**](javascript:%20void%200;) | 2247 | [**D.**](javascript:%20void%200;) | 280.875 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Given Exp. = 8988 x | 1 | x | 1 | = | 2247 | = 280.875 | | 8 | 4 | 8 | |

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| 134. | 287 x 287 + 269 x 269 - 2 x 287 x 269 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 534 | [**B.**](javascript:%20void%200;) | 446 | | [**C.**](javascript:%20void%200;) | 354 | [**D.**](javascript:%20void%200;) | 324 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**   |  |  | | --- | --- | | Given Exp. | = *a*2 + *b*2 - 2*ab*, where *a* = 287 and *b* = 269 | |  | = (*a - b*)2 = (287 - 269)2 | |  | = (182) | |  | = 324 | |

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| 135. | 3 + 33 + 333 + 3.33 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 362.3 | [**B.**](javascript:%20void%200;) | 372.33 | | [**C.**](javascript:%20void%200;) | 702.33 | [**D.**](javascript:%20void%200;) | 702 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**  3  + 33  + 333  + 3.33  ------  372.33  ------ |

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| 136. | Which one of the following can't be the square of natural number ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 30976 | [**B.**](javascript:%20void%200;) | 75625 | | [**C.**](javascript:%20void%200;) | 28561 | [**D.**](javascript:%20void%200;) | 143642 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **D**  **Explanation:**  The square of a natural number nerver ends in 2.  http://www.indiabix.com/_files/images/aptitude/1-sym-tfr.gif 143642 is not the square of natural number. |

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| 137. | (1000)9 ÷ 1024 = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 10000 | [**B.**](javascript:%20void%200;) | 1000 | | [**C.**](javascript:%20void%200;) | 100 | [**D.**](javascript:%20void%200;) | 10 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **B**  **Explanation:**   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | Given Exp. = | (1000)9 | = | (103)9 | = | (10)27 | = 10(27-24) = 103 = 1000 | | 1024 | 1024 | 1024 | |

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| --- | --- |
| 138. | {(476 + 424)2 - 4 x 476 x 424} = ? |
| |  |  |  |  | | --- | --- | --- | --- | | [**A.**](javascript:%20void%200;) | 2906 | [**B.**](javascript:%20void%200;) | 3116 | | [**C.**](javascript:%20void%200;) | 2704 | [**D.**](javascript:%20void%200;) | 2904 | | [**E.**](javascript:%20void%200;) | None of these |  |  |   **Answer & Explanation**  **Answer:** Option **C**  **Explanation:**   |  |  | | --- | --- | | Given Exp. | = [(*a* + *b*)2 - 4*ab*], where *a* = 476 and *b* = 424 | |  | = [(476 + 424)2 - 4 x 476 x 424] | |  | = [(900)2 - 807296] | |  | = 810000 - 807296 | |  | = 2704. | |