**Aptitude Mathematics**

**multiplication**

1. **Multiplication of two digit values.**

95\*96 = ?

Step 1: 100-95 = -5 => a, 100-96 = -4 => b

Step 2: 95-b => 91 OR 96-a => 91

Step 3: 91a\*b = 9120 ans

1. **Multiplication of three digits.**

102\*106 = ?

Step 1: 102-100 = +2 => a, 106-100 = +6 => b

Step 2: 102+b =>108 OR 106+a => 108

Step 3: 108a\*b = 10812 ans

1. **Multiplication of no of 9’s digits value to any value.**

999\*234 = ?

Step 1: 234-1 => 233

Step 2 : 233999-233

Step 3 : 233766 ans

1. **Multiplication of 98 with another value.**

98\*52 = ?

Step 1: 52\*2 => 104

Step 2: 5200-104 => 5096

Step 3: 5096 ans

1. **Multiplication of 97 with another value.**

97\*12 = ?

Step 1: 12\*3 => 36

Step 2: 1200-36 => 1164

Step 3: 1164 ans

**Divide without divide**

1. **Divide by 5**

237/5 = ?

Step 1: 237\*2 = 474

Step 2: 47.4 ans

1. **Divide by 25**

432/25 = ?

Step 1: 432\*4 = 1728

Step 2: 17.28 ans

1. **Divide by 125**

750/125 = ?

Step 1: 750\*8 = 6000

Step 2: 6 ans

**Square**

1. **Square of value witch have 5 at end**

85^2 = ?

Step 1: 5^2 = \_\_25

Step 2: 8\*9 = 72\_\_

Step 3: 7225 ans

75^2 = ?

Step 1: 5^2 = \_\_25

Step 2: 7\*8 = 56\_\_

Step 3: 5625 ans

1. **Square of < 100 value**

98^2 = ?

Step 1: 100-98 = 2

Step 2: 2^2 =\_\_ 04

Step 3: 98-2 = 96\_\_

Step 4: 9604 ans

96^2 = ?

Step 1: 100-96 = 4

Step 2: 4^2 = \_\_16

Step 3: 96-4 = 92\_\_

Step 4: 9216 ans

1. **Square of > 100 value**

102^2 = ?

Step 1: 102-100 = 2

Step 2: 2^2 = \_\_04

Step 3: 102+2 = 104\_\_

Step 4: 10404 ans

103^2 = ?

Step 1: 103-100 = 3

Step 2: 3^2 = \_\_09

Step 3: 103+3 = 106\_\_

Step 4: 10609 ans

**Average**

1. **First ‘n’ odd number’s average is equals to ‘n’.**

1,3,5,7,6 = ?

5 is ans

1. **First ‘n’ even number’s average is equals to ‘n+1’.**

2,4,6,8 = ?

5 is ans

1. **First ‘n’ natural numbers average is equals to “(n+1)/2”.**

1,2,3,4,5 = ?

3 is ans

1. **If first five consecutive numbers average is equals to 63. Find first and last value**

[x+(x+1)+(x+2)+(x+3)+(x+4)+(x+5)]/5 = 63

Step 1: 61 62 **63** 64 64

Step 2: first value is 61, last value is 65

1. **If first five consecutive odd numbers average is equals to 113.find 2nd small value.**

Step 1: 109 111 **113** 115 117

Step 2: 111 is 2nd small value

1. **If first six consecutive even numbers average is 207. Find first and last value.**

Step 1: 202 204 206 207 208 210 212

Step 2: 202 first value and 212 is last value

**Square root**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | **1** | **9 = 10** | | **2** | **8 = 10** | | **3** | **7 = 10** | | **4** | **6 = 10** | | **5** | **5 = 10** | | |  |  | | --- | --- | | **1** | **1** | | **2** | **4** | | **3** | **9** | | **4** | **16** | | **5** | **25** | | **6** | **36** | | **7** | **49** | | **8** | **64** | | **9** | **81** | |

1. **√576 = ?**

Step 1: 76 // 6 comes at the end of square root of 4, 6

Step 2: 5 // 5 comes between 2’s and 3’s square root’s value

Step 3: 2\_\_

Step 4: 2\*3 = 6 // 5 is lesser than 6

Step 5: therefore 24 is ans.

1. **√5184 = ?**

Step 1: 84 // 4 comes at the end of square root of 2, 8

Step 2: 51 // 51 is comes between the 7’s and 8’s square root’s value

Step 3: 7\_\_

Step 4: 7\*8 = 56 // 51 is lesser than 56

step 5: therefore 72 is ans ..

1. **√10609**

Step 1: 09 // 3, 7

Step 2: 106 // 10, 11

Step 3: 10\_\_

Step 4: 10\*11 = 110 // 106<110

Step 5: 103 ans

**Cube root**

1. **Cuberoot using trick**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  | | --- | --- | | 1 | 1 | | 4 | 4 | | 5 | 5 | | 6 | 6 | | 9 | 9 | | 3 | 7 | | 2 | 8 | | |  |  | | --- | --- | | 1 | 1 | | 2 | 8 | | 3 | 27 | | 4 | 64 | | 5 | 125 | | 6 | 216 | | 7 | 343 | | 8 | 512 | | 9 | 729 | | 10 | 1000 | |

**Example**

1. 3√12,167
2. Step 1: 167 = 3 //from first table
3. Step 2: 12 = 2 //from 2nd table
4. Step 3: 23 is ans
5. Preposition of place

At – for specific places, exact location (india gate, canteen)

In – sitting in covered place (country, state, city)