**Math For Progamming**

1. **Number System**
2. **Decimal, Binary, Octal, HexaDecimal**
3. *decimal = 0,1,2,3,4,5,6,7,8,9*
4. *binary = 0,1*
5. *octal = 0,1,2,3,4,5,6,7*
6. *hexadeciaml = 0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F*
7. **Binary to Deciaml**
8. *1101 = 1\*23 + 1\*22 + 0\*21 + 1\*20 == 13*
9. **Decimal to Binary**
10. *13 = 13/2, q=6,r=1; 6/2, q=3,r=0; 3/2, q=1, r =1; ½, q = 0, r=1 == 1101*
11. **Types of Numbers**
12. *real nubmer(any point on the number line)*
13. *positive number(right to the zero)*
14. *negetivee number(left to the zero)*
15. *non-negetive number(positive and zero)*
16. *natural number(1,2,,3,4,5…..)*
17. *whole number (0,1,2,3,4,5…..)*
18. *integer (...-2,-1,0,1,2……)*
19. *rational number(between two point any number will be fraction)*
20. *irrational number(between two point any number not well be fraction)*
21. **Divisions**
22. *divisor, dividend, quotient, remainder*
23. **Divisibility Check**
24. *using factor*
25. *using mode/remainder sign %*
26. *using / sign check integer or real number*
27. **Prime and Composite Numbers**
28. *Prime: Only two factors 1 and itself*
29. *Composite: There exists at least one factor other than 1 and itself*
30. **Even and Odd Numbers**
31. *divide with 2 and checke remainder is 0 or not*
32. **Exam-001**
33. *1101011 is a binary number. Find its equivalent decimal number.*
34. *Find the binary representation for 73 (a decimal number).*
35. *Is 77 a prime number?*
36. *What about 169? Prime or Composite?*
37. *Find out the 12th prime number.*
38. *Find out sum of first n odd numbers. Try n = 1,2,3...*
39. **Floor , Ceiling, Round**
40. *Floor: nearest integer below*
41. *Ceiling: nearest integer above*
42. *Rount: nearest integer*
43. **Divisor Counting – Naive**
44. *take all integers (1 to n) and tests if remainder is 0*
45. **Factorial**
46. *factorial is a function for non-negetive interger.*
47. *Exception: 0!=1*
48. *uses in permutations and combinators*
49. *5 = [5]\*[4]\*[3]\*[2]\*[1]*
50. **Matrix**
51. *A1,3=?*
52. **Power and Roots**
53. *bx=?;b=base,x=exponent*
54. *45 = 4\*4\*4\*4\*4*
55. *√ means = 2*
56. *means = 4*
57. **Sets**
58. **Points and Lines**
59. *points*
60. *line segments*
61. *line*
62. *ray*
63. **Angles**
64. *between two rays extending from the same point*
65. *circular arc to annotate*
66. *full rotation = 360 degrees*

69. *Acute Angle < 90o*
70. *Right Angle = 90o*
71. *Obtuse Angle > 90o*