SUBJECT NAME –MATHEMATICS

GRADE- X

WORKSHEET

TOPIC: TRIGONOMETRY

1. If 4 tan = 3, evaluate [3][2018]
2. If sin = , 0 < < 900, find the value of : x

[3][2016]

1. If sin = x and sec = y then find the value of cot . [1][2014]
2. If cosec = , then what is the value of cos .

[1][2014]

1. Find the value of cos + sec , when it is given that cos =

[1][2014]

1. If sin A = , find the value of 2 cot2 A – 1. [2][2012]
2. ΔABC is right angled at B, BC = 7 cm and AC – AB = 1 cm. Find the value of cos A + sin A. [2][2011]
3. If tan = , what is the value of .
4. If cot A = , then find the value of (sin A + cos A) cosec A.
5. If tan = , show that = .
6. If sin A = , find the value of 2 cot2A – 1. [2][2012]
7. In ΔABC is right angled at B, BC= 7 cm and AC – AB = 1cm. Find the value of cos A + sin A.

 [3][2011]

1. Given tan A = . Determine the values of sin A and sec A [2]
2. If 3 tan = 4, find the value of
3. If 3 cot = 2, find the value of
4. If tan = , prove that =
5. If sec = , show that =3
6. If sin A = , compute cos A and tan A.
7. If Sec = , find the value of x
8. If tan = , find that sin + cos
9. Evaluate 3 cot2 600 + sec2450 [1][2014]
10. ΔRPQ is a right angled at Q. If PQ = 5 cm and RQ = 10 cm, find:

(i)Sin2P (ii) cos2R and tan R

 (iii) sin P x cos P (iv) sin2P – cos2P [4][2014]

1. Evaluate : [4][2013]
2. Evaluate : + - cos2 45 [4][2013]
3. Evaluate: 4(sin4 30 + cos4 60) – 3(cos2 45 – sin2 90) [4][2013]
4. Find the value of cosec 300 geometrically. [2][2010]
5. Find the value of sin300 cos600 – tan450 sec300 cosec600 + 2cot450 [2]
6. In a right angled triangle if tan = . What is the measure of the greatest side of the triangle?
7. Evaluate: [2][2011]
8. Determine the value of x such that 2cosec2 300 + x sin2 600 - tan2 300 = 10

 [4][2011]

1. Evaluate: [RS]
2. Verify 2 sin 450 cos 450 = sin 900 [RS]
3. If A = 450; verify that: sin 2A = 2 sin A cos A [RS]
4. If sin (A + B) =1 and cos (A – B) = , find A and B. [RS]
5. If A = 600 and B = 300, verify that

(i)Cos (A + B) = cos A cos B – sin A sin B

(ii)Sin (A - B) = sin A cos B – cos A sin B [RS]

1. Cot2 30 – 2 cos2 30 - sec2 45 + cosec2 30 [RS]
2. If tan (A + B) = and tan (A – B) = 1, 0 < (A + B) < 900 and A > B. then find A and B. [RS]
3. Evaluate: sin2 30 cos2 45 + 4 tan2 30 + sin2 90 + cot2 60 [RS]
4. If sin (A + 2B) = and cos (A + 4B) = 0, A > B, and A + 4B ≤ 900, then find A and B. [3][2018]
5. Given that cos(A - B) = cos A.cosB + sinA. sinB, find the value of cos 150 in two ways (i) taking A = 600, B = 450 and

 (ii) taking A = 450, B = 300 [4][2014]

1. Prove that (sin + cosec 2 + (cos 2 = 7 + tan2 + cot2 .

 [3][2019]

1. Prove that (1 + cot A – cosec A) (1 + tan A + sec A) = 2 [3][2019]
2. Prove that = [4][2019]
3. Prove that : = tan A [4][2018]
4. If cosec cot = x, find the value of cosec – cot [1][2016]
5. If sec – tan = x, show that : sec = (x + ) and tan = ()

 [4][2016]

1. Prove that : = tan + cot
2. Solve the equation for : = 3 [2][2014]
3. If sin A = cos A, find the value of 2 tan2A + sin2A + 1 [2][2014]
4. Prove that = [3][2014]
5. If x = r cossinØ ; y = r sin. sinØ ; z = r cosØ .Prove that x2 + y2 + z2 = r2

 [2][2014]

1. Prove that = [3][2014]
2. If cosec A + cot A = *m*, show that = cos A [4][2014]
3. If cosec + cot = q, show that cosec - cot = and hence find the values of sinand sec . [4][2014]
4. Prove that + = 2 cosec A [4][2014]
5. If cos + sin = cos , show that cos – sin = sin [2][2013]
6. If sin A = cos A, find the value of 2 tan2 A + sin2A -1 [3][2013]
7. Show that cosec2 - tan2(900 - ) = sin2 + sin2 (900 - ) [3][2013]
8. ABC is a triangle right angled at C and AC = BC. Prove that ABC = 600. [3][2013]
9. Determine the value of x such that

 2cosec2 300 + x sin2 600 - tan2 300 = 10

 [4][2011]

1. Prove that sin (1 + tan) + cos (1 + cot ) = sec + cosec

 [3][2010]

1. Prove that: (1 + cot A – cosec A) (1 + tan A + sec A) = 2 [3][2010]
2. Tan2 A.sec2 B- sec2A tan2B = tan2 A – tan2 B
3. Sec 4 A(1-sin4A) – 2 tan2 A = 1
4. If cosec A + cot A = *m* and cosec A – cot A = *n*, prove that *mn* = 1.
5. Prove that: + = 2 + 2 tan2 A = 2 sec2 A
6. = sin2 A. cos2 A.
7. If sin + sin2 = 1, prove that cos2 + cos4 = 1.
8. Prove that sec A (1 – sin A) (sec A + tan A) = 1.
9. + = sec Cosec – 2 sin cos
10. If a cos + b sin = 5 and a sin - b cos = 4, find the value of a2 + b2.
11. Simplify : + [1]
12. Prove =
13. (1 + tan + cot ) (sin – cos ) =
14. = tan A tan B
15. + = 0
16. =
17. =
18. =
19. =
20. = (sec )2 = 1 + 2 tan2 + 2 sec tan
21. = (cosec )2 = 1 + 2 cot2 + 2 cosec cot
22. = cot
23. (1 – sin )2 = 2 (1 + cos ) (1 – sin )
24. + = 2
25. + =
26. + =
27. =
28. =
29. = 2 sec
30. + = 2 cosec
31. = tan2
32. = (cos2 – sin2 )
33. = = tan2
34. = (cosec )2
35. = (sec )2
36. 4 – cosec2 = cot4 + cot2
37. Sin2 + cos4 = cos2 + sin4
38. Sin6 + cos 6 = 1 – 3sin2 cos2
39. + = sin cos
40. (1 + tan2 )(1 + cot2 ) =
41. = tan
42. + = 1
43. - = (cos + sin )
44. + = (1 + sin cos)
45. + = (1 + sec)
46. + = 2 cosec
47. Sin (1 + tan) + cos (1 + cot ) = (sec + cosec )
48. Sec (1 – sin )(sec + tan ) = 1
49. 1 + = sec
50. 1 + = cosec
51. cosec(cosec – cot ) = 1
52. (1 + cos )(1 – cos )(1 + cot2) = 1
53. + = 1
54. 2 + = 1
55. (1 – cos2) sec2 = tan2
56. (sec2 - 1)(cosec2 - 1) = 1
57. (Sec2 - 1)cot2 = 1
58. (1 + cot2 ) sin2 = 1
59. (1 – cos2 ) cosec2 = 1
60. In a right angled triangle if tan = . What is the measure of the greatest side of the triangle?
61. If sin + cos = , then prove that tan + cot = 1
62. Prove that 2 (sin6 + cos6 ) – 3(sin4 + cos4 ) + 1 = 0
63. (1 + cot + tan )(sin – cos ) = -
64. If cosec – sin = *l* and sec – cos = *m*, prove that *l2m2* (*l2 + m2 + 3*) *= 1*
65. Prove that =
66. Prove that = 2 +
67. If x = a sin + b cos and y = a cos – b sin , prove that x2 + y2 = a2 + b2.
68. If x = a sin and y = b tan , prove that = 1
69. If sin + cos = p and sec + cosec = q, show that

 q(p2 - 1) = 2p

1. If sec + tan = m , show that = sin
2. If cosec – sin = m and sec – cos = n, prove that (m2n)2/3 + (mn2)2/3 = 1
3. If tan + sin = m and tan – sin = n, show that (m2 – n2) = 4 .