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5.3 Sum, Difference and Double Angle Formulas for Sine, Cosine and Tangent

Direction: Do these problems without a calculator but check them with a calculator.

For 1-7, evaluate:

1. tan(π/12)

2. tan(255o)

3. csc(345o)

4. cot(165o)

5. sec(75o)

6. cos(285o)

7. tan(7π/12)

For 8-12, graph:

8. y = 3sin(x)cos(2x) + 3cos(x)sin(2x)

9. y = cos2 (x/2) – sin2(x/2)

10. y = 10sin(x/4)cos(x/4)

11. y = 3 – cos(2x)cos(x) – sin(2x)sin(x)

12. y = 1/(cos(3x)sin(2x) – cos(2x)sin(3x)

13. Given: SinA = 3/5 in QII, cotB = 20/21 in QIII. Find sin(2A), cos(A+B) and tan(A-B).

14. Given cosA = -7/25 in QII and cscB = -13/12 in QIV. Find sin(A-B), cos(2A) and tan(A+B).

For 16-23, evaluate:

15. sin22cos23 + cos22sin23

16. cos158cos38 + sin158sin38

17. 2sin75cos75

18. cos2112.5 – sin2112.5

19. sin(π/15)cos(π/10) + cos(π/15)sin(π/10)

20. cos(π/5)cos(19π/30) – sin(π/5)sin(19π/30)

21. 2tan(15)/(1 – tan2(15)

22. (tan140 – tan5)/(1+tan5tan140)

Bonus

23. Find the exact value of cos(arcsin(4/5) – tan-1(3))

24. Find the exact value of tan(arcsin(-5/13) + arcos(-20/29))