

**Разноуровневые задания  
для 10 класса  
на тему  
«Тригонометрические  
формулы»**

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$$1. \sin^2 x + \cos^2 x =$$

$$1. \operatorname{tg} x$$

$$2. \operatorname{ctg} x$$

$$3. -\cos x$$

$$4. \sin x$$

$$5. \sin x \sin y - \cos x \cos y$$

$$6. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. 2 \sin x \cos x$$

$$8. \cos^2 x - \sin^2 x$$

$$9. -\sin x$$

$$10. \cos x$$

$$11. 1$$

$$12. \frac{1}{\cos^2 x}$$

$$13. \frac{\sin x}{\cos x}$$

$$14. \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$15. \frac{1}{\sin^2 x}$$

$$16. \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$17. \sin x \cos y + \cos x \sin y$$

$$18. \sin x \cos y - \cos x \sin y$$

$$19. \cos x \cos y + \sin x \sin y$$

$$20. \cos x \cos y - \sin x \sin y$$

$$21. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. 2 \sin^2 x$$

$$23. 2 \cos^2 x$$

$$24. \frac{\cos x}{\sin x}$$

$$25. -\operatorname{tg} x$$

$$26. -\operatorname{ctg} x$$

$$27. \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$2. \quad 1 + \operatorname{tg}^2 x =$$

$$1. \operatorname{tg} x$$

$$2. \operatorname{ctg} x$$

$$3. -\cos x$$

$$4. \sin x$$

$$5. \sin x \sin y - \cos x \cos y$$

$$6. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. 2 \sin x \cos x$$

$$8. \cos^2 x - \sin^2 x$$

$$9. -\sin x$$

$$10. \cos x$$

$$11. 1$$

$$12. \frac{1}{\cos^2 x}$$

$$13. \frac{\sin x}{\cos x}$$

$$14. \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$15. \frac{1}{\sin^2 x}$$

$$16. \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$17. \sin x \cos y + \cos x \sin y$$

$$18. \sin x \cos y - \cos x \sin y$$

$$19. \cos x \cos y + \sin x \sin y$$

$$20. \cos x \cos y - \sin x \sin y$$

$$21. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. 2 \sin^2 x$$

$$23. 2 \cos^2 x$$

$$24. \frac{\cos x}{\sin x}$$

$$25. -\operatorname{tg} x$$

$$26. -\operatorname{ctg} x$$

$$27. \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$3. \quad 1 + \operatorname{ctg}^2 x =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$6. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. \quad 2 \sin x \cos x$$

$$8. \quad \cos^2 x - \sin^2 x$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$11. \quad 1$$

$$13. \quad \frac{\sin x}{\cos x}$$

$$14. \quad \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$15. \quad \frac{1}{\sin^2 x}$$

$$16. \quad \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$17. \quad \sin x \cos y + \cos x \sin y$$

$$18. \quad \sin x \cos y - \cos x \sin y$$

$$19. \quad \cos x \cos y + \sin x \sin y$$

$$20. \quad \cos x \cos y - \sin x \sin y$$

$$21. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$24. \quad \frac{\cos x}{\sin x}$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$



$$4. \quad \operatorname{tg} x =$$

$$1. \operatorname{tg} x$$

$$2. \operatorname{ctg} x$$

$$3. -\cos x$$

$$4. \sin x$$

$$5. \sin x \sin y - \cos x \cos y$$

$$6. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. 2 \sin x \cos x$$

$$8. \cos^2 x - \sin^2 x$$

$$9. -\sin x$$

$$10. \cos x$$

$$11. 1$$

$$13. \frac{\sin x}{\cos x}$$

$$14. \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$16. \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$17. \sin x \cos y + \cos x \sin y$$

$$18. \sin x \cos y - \cos x \sin y$$

$$19. \cos x \cos y + \sin x \sin y$$

$$20. \cos x \cos y - \sin x \sin y$$

$$21. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. 2 \sin^2 x$$

$$23. 2 \cos^2 x$$

$$24. \frac{\cos x}{\sin x}$$

$$25. -\operatorname{tg} x$$

$$26. -\operatorname{ctg} x$$

$$27. \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

5.  $ctgx =$

1.  $tg x$

2.  $ctg x$

3.  $-\cos x$

4.  $\sin x$

5.  $\sin x \sin y - \cos x \cos y$

6.  $\frac{ctgx \cdot ctg y + 1}{ctg x - ctg y}$

7.  $2 \sin x \cos x$

8.  $\cos^2 x - \sin^2 x$

9.  $-\sin x$

10.  $\cos x$

11.  $1$

14.  $\frac{tgx - tgy}{1 + tgx \cdot tgy}$

16.  $\frac{tgx + tgy}{1 - tgx \cdot tgy}$

17.  $\sin x \cos y + \cos x \sin y$

18.  $\sin x \cos y - \cos x \sin y$

19.  $\cos x \cos y + \sin x \sin y$

20.  $\cos x \cos y - \sin x \sin y$

21.  $\frac{ctgx \cdot ctg y - 1}{ctg x + ctg y}$

22.  $2 \sin^2 x$

23.  $2 \cos^2 x$

24.  $\frac{\cos x}{\sin x}$

25.  $-\operatorname{tg} x$

26.  $-\operatorname{ctg} x$

27.  $\frac{2tgx}{1 - tg^2 x}$

$$6. \quad \operatorname{tg} x \cdot \operatorname{ctg} x =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$6. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. \quad 2 \sin x \cos x$$

$$8. \quad \cos^2 x - \sin^2 x$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$11. \quad 1$$

$$14. \quad \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$16. \quad \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$17. \quad \sin x \cos y + \cos x \sin y$$

$$18. \quad \sin x \cos y - \cos x \sin y$$

$$19. \quad \cos x \cos y + \sin x \sin y$$

$$20. \quad \cos x \cos y - \sin x \sin y$$

$$21. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. \quad 2 \sin^2 x \quad 23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x \quad 26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$



$$7. \sin(x + y) =$$

$$1. \operatorname{tg} x$$

$$2. \operatorname{ctg} x$$

$$3. -\cos x$$

$$4. \sin x$$

$$5. \sin x \sin y - \cos x \cos y$$

$$6. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. 2 \sin x \cos x$$

$$8. \cos^2 x - \sin^2 x$$

$$9. -\sin x$$

$$10. \cos x$$

$$16. \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$17. \sin x \cos y + \cos x \sin y$$

$$18. \sin x \cos y - \cos x \sin y$$

$$19. \cos x \cos y + \sin x \sin y$$

$$20. \cos x \cos y - \sin x \sin y$$

$$21. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. 2 \sin^2 x$$

$$23. 2 \cos^2 x$$

$$25. -\operatorname{tg} x$$

$$26. -\operatorname{ctg} x$$

$$14. \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$27. \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$



$$8. \cos(x - y) =$$

$$1. \operatorname{tg} x$$

$$2. \operatorname{ctg} x$$

$$3. -\cos x$$

$$4. \sin x$$

$$5. \sin x \sin y - \cos x \cos y$$

$$6. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. 2 \sin x \cos x$$

$$8. \cos^2 x - \sin^2 x$$

$$9. -\sin x$$

$$10. \cos x$$

$$16. \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$18. \sin x \cos y - \cos x \sin y$$

$$19. \cos x \cos y + \sin x \sin y$$

$$20. \cos x \cos y - \sin x \sin y$$

$$21. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. 2 \sin^2 x \quad 23. 2 \cos^2 x$$

$$25. -\operatorname{tg} x \quad 26. -\operatorname{ctg} x$$

$$27. \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$14. \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$9. \quad \operatorname{tg}(x + y) =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$6. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. \quad 2 \sin x \cos x$$

$$8. \quad \cos^2 x - \sin^2 x$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$16. \quad \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$18. \quad \sin x \cos y - \cos x \sin y$$

$$20. \quad \cos x \cos y - \sin x \sin y$$

$$21. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$14. \quad \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$10. \quad \operatorname{tg}(x - y) =$$

$$1. \operatorname{tg} x$$

$$2. \operatorname{ctg} x$$

$$3. -\cos x$$

$$4. \sin x$$

$$5. \sin x \sin y - \cos x \cos y$$

$$6. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. 2 \sin x \cos x$$

$$8. \cos^2 x - \sin^2 x$$

$$9. -\sin x$$

$$10. \cos x$$

$$18. \sin x \cos y - \cos x \sin y$$

$$20. \cos x \cos y - \sin x \sin y$$

$$21. \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. 2 \sin^2 x$$

$$23. 2 \cos^2 x$$

$$25. -\operatorname{tg} x$$

$$26. -\operatorname{ctg} x$$

$$27. \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$14. \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$



$$11. \quad \operatorname{ctg}(x + y) =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$6. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. \quad 2 \sin x \cos x$$

$$8. \quad \cos^2 x - \sin^2 x$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$18. \quad \sin x \cos y - \cos x \sin y$$

$$20. \quad \cos x \cos y - \sin x \sin y$$

$$21. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$12. \quad \operatorname{ctg}(x - y) =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$6. \quad \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$7. \quad 2 \sin x \cos x$$

$$8. \quad \cos^2 x - \sin^2 x$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$18. \quad \sin x \cos y - \cos x \sin y$$

$$20. \quad \cos x \cos y - \sin x \sin y$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$13. \quad \sin(x - y) =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$7. \quad 2 \sin x \cos x$$

$$8. \quad \cos^2 x - \sin^2 x$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$18. \quad \sin x \cos y - \cos x \sin y$$

$$20. \quad \cos x \cos y - \sin x \sin y$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$



14.  $\cos(x + y) =$

1.  $\operatorname{tg} x$

2.  $\operatorname{ctg} x$

3.  $-\cos x$

4.  $\sin x$

5.  $\sin x \sin y - \cos x \cos y$

7.  $2 \sin x \cos x$

8.  $\cos^2 x - \sin^2 x$

9.  $-\sin x$

10.  $\cos x$

20.  $\cos x \cos y - \sin x \sin y$

22.  $2 \sin^2 x$

23.  $2 \cos^2 x$

25.  $-\operatorname{tg} x$

26.  $-\operatorname{ctg} x$

27.  $\frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$

15.  $\sin 2x =$

1.  $\operatorname{tg} x$

2.  $\operatorname{ctg} x$

3.  $-\cos x$

4.  $\sin x$

5.  $\sin x \sin y - \cos x \cos y$

7.  $2 \sin x \cos x$

8.  $\cos^2 x - \sin^2 x$

9.  $-\sin x$

10.  $\cos x$

22.  $2 \sin^2 x$

23.  $2 \cos^2 x$

25.  $-\operatorname{tg} x$

26.  $-\operatorname{ctg} x$

27.  $\frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$

$$16. \quad \cos 2x =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$8. \quad \cos^2 x - \sin^2 x$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$



$$17. \quad \sin(-x) =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$9. \quad -\sin x$$

$$10. \quad \cos x$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$18. \quad \cos(-x) =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$10. \quad \cos x$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$25. \quad -\operatorname{tg} x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

19.  $\operatorname{tg}(-x) =$

1.  $\operatorname{tg} x$

2.  $\operatorname{ctg} x$

3.  $-\cos x$

4.  $\sin x$

5.  $\sin x \sin y - \cos x \cos y$

22.  $2 \sin^2 x$

23.  $2 \cos^2 x$

25.  $-\operatorname{tg} x$

26.  $-\operatorname{ctg} x$

27.  $\frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$



$$20. \quad \operatorname{ctg}(-x) =$$

$$1. \quad \operatorname{tg} x$$

$$2. \quad \operatorname{ctg} x$$

$$3. \quad -\cos x$$

$$4. \quad \sin x$$

$$5. \quad \sin x \sin y - \cos x \cos y$$

$$22. \quad 2 \sin^2 x$$

$$23. \quad 2 \cos^2 x$$

$$26. \quad -\operatorname{ctg} x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$21. 1 + \cos 2x =$$

$$1. \operatorname{tg} x$$

$$2. \operatorname{ctg} x$$

$$3. -\cos x$$

$$4. \sin x$$

$$5. \sin x \sin y - \cos x \cos y$$

$$22. 2 \sin^2 x$$

$$23. 2 \cos^2 x$$

$$27. \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$22. \quad 1 - \cos 2x =$$

1.  $\operatorname{tg} x$

2.  $\operatorname{ctg} x$

3.  $-\cos x$

4.  $\sin x$

5.  $\sin x \sin y - \cos x \cos y$

$$22. \quad 2 \sin^2 x$$

$$27. \quad \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$

$$23. \operatorname{tg} 2x =$$

1.  $\operatorname{tg} x$

2.  $\operatorname{ctg} x$

3.  $-\cos x$

4.  $\sin x$

5.  $\sin x \sin y - \cos x \cos y$

$$27. \frac{2\operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$



1.  $\operatorname{tg} x$

2.  $\operatorname{ctg} x$

3.  $-\cos x$

4.  $\sin x$

5.  $\sin x \sin y - \cos x \cos y$

$$1. \sin^2 x + \cos^2 x = 1$$

$$2. 1 + \operatorname{tg}^2 x = \frac{1}{\cos^2 x}$$

$$3. 1 + \operatorname{ctg}^2 x = \frac{1}{\sin^2 x}$$

$$4. \operatorname{tg} x = \frac{\sin x}{\cos x}$$

$$5. \operatorname{ctg} x = \frac{\cos x}{\sin x}$$

$$6. \operatorname{tg} x \cdot \operatorname{ctg} x = 1$$

$$7. \sin(x + y) = \sin x \cos y + \cos x \sin y$$

$$8. \cos(x - y) = \cos x \cos y + \sin x \sin y$$

$$9. \cos(x + y) = \cos x \cos y - \sin x \sin y$$

$$10. \sin(x - y) = \sin x \cos y - \cos x \sin y$$

$$11. \operatorname{tg}(x + y) = \frac{\operatorname{tg} x + \operatorname{tg} y}{1 - \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$12. \operatorname{tg}(x - y) = \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \cdot \operatorname{tg} y}$$

$$13. \operatorname{ctg}(x + y) = \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y - 1}{\operatorname{ctg} x + \operatorname{ctg} y}$$

$$14. \operatorname{ctg}(x - y) = \frac{\operatorname{ctg} x \cdot \operatorname{ctg} y + 1}{\operatorname{ctg} x - \operatorname{ctg} y}$$

$$15. \sin(-x) = -\sin x$$

$$16. \cos(-x) = \cos x$$

$$17. \operatorname{tg}(-x) = -\operatorname{tg} x$$

$$18. \operatorname{ctg}(-x) = -\operatorname{ctg} x$$

$$19. \sin 2x = 2 \sin x \cos x$$

$$20. \cos 2x = \cos^2 x - \sin^2 x$$

$$21. 1 + \cos 2x = 2 \cos^2 x$$

$$22. 1 - \cos 2x = 2 \sin^2 x$$

$$23. \operatorname{tg} 2x = \frac{2 \operatorname{tg} x}{1 - \operatorname{tg}^2 x}$$