Trig Derivatives

Find the derivative of each function.

Formulas

$\frac{d}{dx}\left[\sin(u)\right] = \cos(u)\cdot u'$

$\frac{d}{dx}\left[\cos(u)\right] = -\sin(u)\cdot u'$

$\frac{d}{dx}\left[\tan(u)\right] = \sec^2(u)\cdot u'$

$\frac{d}{dx}\left[\sec(u)\right] = \sec(u)\tan(u)\cdot u'$

$\frac{d}{dx}\left[\csc(u)\right] = -\csc(u)\cot(u)\cdot u'$

$\frac{d}{dx}\left[\cot(u)\right] = -\csc^2(u)\cdot u'$

1. $f(x) = 3\sin(x) - 5\cos(x)$

2. $f(x) = 4\tan(x)$

3. $f(x) = 2\sec(x)$

4. $f(x) = 4\csc(x)$

5. $f(x) = 2\cot(x) + 6\sin(x)$

6. $f(x) = 5x^2 + 6\cos(x)$

7. $f(x) = 2\sin(5x)$

8. $f(x) = \cos(5x)$

9. $f(x) = \tan(5x)$

10. $f(x) = \sec(5x)$

11. $f(x) = 4\csc(2x)$

12. $f(x) = \cot(4x)$

13. $f(x) = 3x^3 + \cot(x)$

14. $f(x) = 5\tan(x) - \sec(x)$

15. $f(x) = \sec(2x) + \csc(3x)$

16. $f(x) = 3\tan(3x) - 5\cot(2x)$

17. $f(x) = 5\cos(\frac{x}{2}) + \sin(\frac{x}{3})$

18. $f(x) = \sec(4x) + 3\tan(2x) + 3x$

19. $f(x) = \csc(4x) - \cot(2x)$

20. $f(x) = 3\cos(5x) - \sin(2x) + 5$