

Derivatives

Moderate

Trig Functions

1. $\frac{d}{dx}(x \sin(x) + \cos(x))$

2. $\frac{d}{dx}\left(\frac{\tan(x)}{\pi x}\right)$

3. $\frac{d}{dx}\left(\frac{\sin(x) + 1}{\cos(x) - 1}\right)$

4. $\frac{d}{dx}(\pi \cot(x))$

5. $\frac{d}{dx}(\tan(x) \sin(x))$

6. $\frac{d}{dx}(4 \sin(x))$

7. $\frac{d}{dx}(\tan(x) - x)$

8. $\frac{d}{dx}(\pi \csc(x))$

9. $\frac{d}{dx}\left(\frac{\sin(x)}{2x}\right)$

10. $\frac{d}{dx}(\cos(x) \sin(x))$

Answers

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Trig Functions

1. $x \cos(x)$

2.
$$\frac{x \sec^2(x) - \tan(x)}{\pi x^2}$$

3.
$$\frac{1 - \cos(x) + \sin(x)}{1 + \cos^2(x) - 2\cos(x)}$$

4. $-\pi \csc^2(x)$

5. $\sin(x) \left(1 + \sec^2(x) \right)$

6. $4 \cos(x)$

7. $\tan^2(x)$

8. $-\pi \cot(x) \csc(x)$

9.
$$\frac{x \cos(x) - \sin(x)}{2x^2}$$

10. $\cos(2x)$