

1-15: Find the derivatives of the function.

1. $f(x) = \arcsin(x + 1)$

2. $f(t) = \arcsin t^2$

3. $g(x) = 3 \arccos \frac{x}{2}$

4. $f(x) = \operatorname{arcsec} 2x$

5. $f(x) = \arctan e^x$

6. $f(x) = \arctan \sqrt{x}$

7. $g(x) = \frac{\arcsin 3x}{x}$

8. $g(x) = \frac{\arccos x}{x + 1}$

9. $g(x) = e^{2x} \arcsin x$

10. $h(x) = x^2 \arctan 5x$

11. $h(x) = \operatorname{arccot} 6x$

12. $f(x) = \operatorname{arccsc} 3x$

13. $h(t) = \sin(\arccos t)$

14. $f(x) = \arcsin x + \arccos x$

15. $y = 2x \arccos x - 2\sqrt{1 - x^2}$

16. $g(t) = \tan(\arcsin t)$

17. $f(x) = \operatorname{arcsec} x + \operatorname{arccsc} x$

18. $y = x \arcsin x + \sqrt{1 - x^2}$

Answers:

1. $\frac{1}{\sqrt{1 - (x + 1)^2}}$	2. $\frac{2t}{\sqrt{1 - t^4}}$	3. $\frac{-3}{\sqrt{4 - x^2}}$
4. $\frac{1}{ x \sqrt{4x^2 - 1}}$	5. $\frac{e^x}{1 + e^{2x}}$	6. $\frac{1}{2\sqrt{x} + 2x\sqrt{x}}$
7. $\frac{3x - \sqrt{1 - 9x^2} \arcsin 3x}{x^2 \sqrt{1 - 9x^2}}$	8. $-\frac{x + 1 + \sqrt{1 - x^2} \arccos x}{(x + 1)^2 \sqrt{1 - x^2}}$	9. $e^{2x} \left[2 \arcsin x + \frac{1}{\sqrt{1 - x^2}} \right]$
10. $2x \arctan 5x + \frac{5x^2}{1 + 25x^2}$	11. $\frac{-6}{1 + 36x^2}$	12. $\frac{-3}{ 3x \sqrt{9x^2 - 1}}$
13. $\frac{-t}{\sqrt{1 - t^2}}$	14. 0	15. $2 \arccos x$
16. $\frac{1}{(1 - t^2)^{3/2}}$	17. 0	18. $\arcsin x$