Inverse Trig Derivatives

Find the derivative of each function.

Formulas

$$\frac{d}{dx}\left[\arcsin(u)\right] = \frac{u'}{\sqrt{1-u^2}} \qquad \frac{d}{dx}\left[\arccos(u)\right] = -\frac{u'}{\sqrt{1-u^2}}$$

$$\frac{d}{dx}\left[\arctan(u)\right] = \frac{u'}{1+u^2}$$

1. $f(x) = \arcsin(2x)$

2. $f(x) = \arctan(2x)$

3. $f(x) = \arccos(4x)$

4. $f(x) = \arcsin(x^2)$

5. $f(x) = \arctan(x^2)$

6. $f(x) = \arccos(3x^2)$

7. $f(x) = 2\arcsin(2x)$

8. $f(x) = 3\arctan(2x)$

9. $f(x) = \arccos(x^3)$

10. $f(x) = \arctan(2x^2)$

11. $f(x) = 4\arccos(3x)$

12. $f(x) = \arctan(5x)$

13. $f(x) = \arctan(4x) + 3x$

14. $f(x) = \arcsin(2x^2)$

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

16. $f(x) = \arcsin(\sqrt{x}\,)$

17. $f(x) = x\arctan(x)$

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

19. $f(x) = 3x\arcsin(x)$

20. $f(x) = x^2\arctan(x)$