

Calculus I Worksheet
Chain Rule

Name: _____

Find the derivative of each of the following. Show all necessary work. **Simplify!!**

1. $y = (4x + 5)^4$

2. $y = \cos(2x + 3)$

3. $y = 3(5x + 5)^2$

4. $y = \tan(2x^3 - 1)$

5. $y = \sin^3 x$

6. $(2x^3 + 7)^4(2x + 1)^2$

7. $y = \tan^4 x$

8. $(4x^3 - 7)^4(3x + 2)^0$

9. $y = \sec^4 x$

10. $y = \frac{7}{(2x + 7)^2}$

11. $y = -2\csc^4 x$

12. $y = \frac{-5}{(3x^2 - 4)^4}$

$$13. y = \cos^3(4x)$$

$$14. y = \sqrt[3]{4x-1}$$

$$15. y = \cos[(4x)^3]$$

$$16. y = \sin(\cos x)$$

$$17. y = \frac{4}{\sqrt{x-5}}$$

$$18. y = \sin(\cos(3x^2 + 5))$$

$$19. y = \sin^3(2x+1)$$

$$20. y = 3x \sin(6x)$$

$$21. y = \left(\frac{x+2}{x+1}\right)^3$$

$$22. y = \frac{(2x-1)^4}{(x+1)^2}$$

$$23. y = \left(\frac{x+1}{x-2}\right)^5$$

$$24. y = \frac{(x+1)^6}{(3x-2)^3}$$