

AP CALCULUS BC
Topic 3.1 CHAIN RULE

Find $\frac{dy}{dx}$ for each. Show work on *separate piece of paper*.

1. $y = (2x - 5)^5$

2. $y = (\cos x)^7$

3. $y = (10x^2 - 5x - 3)^4$

4. $y = (\tan x)^8$

5. $y = (\sec x)^3$

6. $y = (4x - \sqrt{x})^{10}$

7. $y = \frac{1}{(5x-2)^5}$

8. $y = (x - 5)^{3/5}$

9. $y = \sqrt{8x - 3}$

10. $y = \frac{1}{\sin^5 x}$

11. $y = \sin(3x)$

12. $y = (x^2 + 5)^{10}$

13. $y = 3\tan^5 x$

14. $y = \sqrt{4x^{10} + 2x^5 + x^2}$

15. $y = \frac{2}{\sin x}$

16. $y = \csc(\tan x)$

17. $y = \cos\sqrt{4x^2 + 2x}$ **(double chain)**

18. $y = \frac{1}{\cot(3x)}$

19. $y = 100(10x + 5)^{20}$

20. $y = 2\sin(\cos^4 x)$ **(double chain)**