

Chain Rule Practice with Logs and Exponentials

Name _____

Period _____

$$y = u^a \qquad y' =$$

$$y = a^u \qquad y' =$$

$$y = \log_a u \qquad y' =$$

$$y = u^v \qquad y' =$$

a^u, u^a, u^v or $\log_a u$?

In exercises 1 - 24, identify the type of function and find dy/dx .

1. $y = x^\pi$

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

3. $y = x^{-\sqrt{2}}$

4. $y = x^e$

5. $y = 7^x$

6. $y = 10^{-x}$

7. $y = 3^{\sin x}$

8. $y = e^{\tan x}$

9. $y = \ln^2 x$

10. $y = 1/\ln x$

11. $y = x^x$

12. $y = (\sin x + 2)^{\sqrt{2}}$

13. $y = x^{\sin x}$

14. $y = \tan^2 x$

15. $y = \log_8 x^2$

16. $y = \log_5 \sqrt{x}$

17. $y = \log(3x^2 - x)$

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

19. $y = \log(1/x)$

20. $y = 1/\log x$

21. $y = \ln 10 \cdot \log x$

22. $y = \log_3 (2 + x \ln 3)$

23. $y = \log e^x$

24. $y = \ln 10^x$