Calculus Worksheet #2 Unit 10 page 1 _____

Find dy/dx for each of the following functions.

1. $y = \ln | 2x |$

2. $y = \ln | \sin x |$

3. $y = \ln (x^2)$

4. $y = \ln | \cos x |$

5. $y = \text{Log} | x^5 |$

6. $y = \text{Log} | \tan x |$

7. $y = \ln (x^{20})$

8. $y = \ln | \cot x |$

9. $y = \ln | 3x + 1 |$

10. $y = \ln | \sec x |$

11. $y = \text{Log}_2 | x^3 + 2 |$

12. $y = \text{Log}_5 | \cot x |$

13. $y = \ln | 1 - x^2 |$

14. $y = \ln | \sec x + \tan x |$

Integrate each of the following.

15. $\int \frac{dx}{5x - 1} =$

16. $\int \frac{x\,dx}{x^2 - 9} =$

17. $\int \frac{x\,dx}{5x^2 + 2} =$

18. $\int \frac{2x + 1}{x^2 + x - 1}\,dx =$

19. $\int \cot x\,dx =$

20. $\int \csc x\,dx =$

Hint: $\csc x = \frac{(\csc x)(\csc x + \cot x)}{\csc x + \cot x}$

21. $\int \frac{2x + 5}{x + 2}\,dx =$

22. $\int \frac{x^2 + 3x + 2}{x - 3}\,dx =$