Senior Analysis Name _____

Review – Lectures 32 - 34

Evaluate the following limits.

1. $\lim_{x\to 0} \dfrac{5x}{\sin 25x}$

2. $\lim_{x\to 0} \dfrac{\sin^5 3x}{27x^5}$

3. $\lim_{x\to 0} \dfrac{5x^2 + \sin^2 6x}{3x^2}$

4. $\lim_{x\to 2} \dfrac{\sin(x-2)}{x^2 - 8x + 12}$

5. $\lim_{x\to 0} \left(\dfrac{\sin^2 (7x)}{5x^2 - 12x^3} \right)$

Find $\dfrac{dy}{dx}$ for the following

6. $y = 5x^3 + \cos 6x$

7. $y = \dfrac{3}{x^2} + \sin^2 5x$

8. $y = \cos^4 10x$

9. $y = \sin^2 6x$

10. $y = \left(\cos^2 x\right)\left(\sin^2 x\right)$

11. $y = \dfrac{1 - \sin x}{\sin x}$

12. $y = (\sin x + \cos x)\csc x$

13. $y = 3\sin^8\left(2x^2\right)$

14. $y = x^2 \sin\left(x^2\right)$

15. $y = \csc^2 x + \cot^2 x$

16. $y = \sin^2 x + \sin x$

17. $y = x^2 \tan x - \sec x$

18. $x^2 + y^2 = 10$

19. $x^2 - y^2 = 2$

20. $2xy = x^2$

21. $x^2y + xy = 5$

21. $\dfrac{y}{x} = 3$

22. $x^2y^2 + 2xy = 0$