Math 150 Make-up Exam Name_____
K.A. Pericak-Spector

Find y' if

1. $y = \sqrt[3]{x^5}$

2. $y = e^x$

3. $y = 3\tan x$

4. $y = 2\cos x$

5. $y = \sin x - \ln x$

6. $y = \dfrac{1}{\sqrt{x}} + x^3$

7. $y = x\sec x$

8. $y = x^2 \ln x$

9. $y = \dfrac{x^2+3}{x^2+4}$

10. $y = \dfrac{3 + \sin x}{4 + 2e^x}$

11. $y = e^{x^2}$

12. $y = \ln(2 + \cos x)$

13. $y = x^2y + xy^3 - 4$

14. $\sin(xy) - y^2 + 5 = 0$

15. $y = (\sin x + 4)^{x^2}$

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

17. $y = \displaystyle\int_1^x \frac{dt}{\sqrt{t^3 + 1}}$

18. $y = \displaystyle\int_x^3 \frac{dt}{\sqrt{t} + t^2}$

19. $y = \int_4^{x^3} \sin(t^2 + 2t)dt$

20. $y = \dfrac{x + \sin x}{x^2 + 1}$

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

22. $y = x^2 + x - 1 + \dfrac{1}{x} + \dfrac{1}{x^2}$

23. $y = xe^{3x}$

24. $y = e^{3x} \cos 2x$

25. $y = \ln(x^2 + 1)$

26. $y = (1 + \ln x)^{x^3}$

27. $y = x^2 + 3x + 5$

Evaluate:

1. $\int \sqrt[3]{x^5}dx$

2. $\int e^x\,dx$

3. $\int_1^4 \sqrt{x}dx$

4. $\int_0^1 e^x dx$

5. $\int 3\sec^2 x\,dx$

6. $\int 2\cos x\,dx$

7. $\int_{\pi/6}^{\pi/2} 3\sin x\,dx$

8. $\int_1^2 \frac{dx}{x}\,dx$

9. $\int (\sin x + \cos x)\,dx$

10. $\int (e^x - \csc^2 x)\, dx$

11. $\int x(x^2 + 1)\, dx$

12. $\int 2xe^{x^2+1} dx$

13. $\int \frac{x}{1+x^2} dx$

14. $\int (e^{2x} + \sin 3x) dx$

15. $\int (\cos 2x + \frac{1}{x+4}) dx$

16. $\int (\tan x + \sec x \tan x) dx$

17. $\int_0^1 x\sqrt{1+x} dx$

18. $\int_1^2 \frac{(\ln x)^3}{x} dx$

19. $\int (e^{-x} + e^{x} + e^{2x})dx$

20. $\int (\sin 2x + \sin \frac{x}{2})dx$

21. $\int \frac{dx}{x \ln x} dx$

22. $\int \left(\cos 3x - \cos \frac{x}{3} \right) dx$

23. $\int \left(\frac{1}{x+2} - \frac{1}{x+3} \right) dx$

24. $\int (\sin^2 x + \cos^2 x)dx$

25. $\int (\tan^2 x + 1)dx$

26. $\int \left(\sqrt[3]{x} - \frac{1}{\sqrt{x}} + \frac{1}{x} \right)$

27. $\int dx$