Determine the derivative for each of the following: (Do not simplify!)

1.	$y=\sqrt{3x}$	$dy/dx=$
2.	$y=\ln(4x)$	$dy/dx=$
3.	$y=3^x$	$dy/dx=$
4.	$y=\cos(2x)$	$dy/dx=$
5.	$y=\log_5 6x$	$dy/dx=$
6.	$y=e^{-x}$	$dy/dx=$
7.	$y=\sinh(1-2x)$	$dy/dx=$
8.	$y=\pi$	$dy/dx=$
9.	$y=\sin x^3$	$dy/dx=$
10.	$y=\tan\left(2\sqrt{x}\right)$	$dy/dx=$
11.	$y=1/(2-3x)$	$dy/dx=$
12.	$y=\sqrt[3]{5x-1}$	$dy/dx=$
13.	$y=\ln x^3$	$dy/dx=$
14.	$y=2^{x^2}$	$dy/dx=$
15.	$y=\arctan(6x)$	$dy/dx=$
16.	$y=\sin^2 2x$	$dy/dx=$
17.	$y=\sec(\pi x)$	$dy/dx=$
18.	$y=\arcsin\sqrt[4]{x}$	$dy/dx=$
19.	$y=e^{x^{1/2}}$	$dy/dx=$
20.	$y=\left(7x^2+2\right)^{3/2}$	$dy/dx=$

21. Find $\dfrac{dy}{dx}$ for $y=e^{-x}\ln(3x)$

22. Find dy/dx for $y=\dfrac{\cosh\left(x^2+2\right)}{x^3+4x^2+1}$

23. Find dy/dx for $y=\tan^3\sqrt{x^2+2x}$

24. Find $\dfrac{dy}{dx}$ for $y=\dfrac{e^{-x}}{\tanh x}$

25. Find $f'(x)$ for $f(x)=2^x\tan x+2x$

26. Find $\dfrac{dy}{dx}$ for $y=\sqrt{x}\tan^{-1}x$

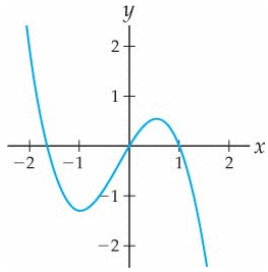
27. Find $f'(x)$ for $f(x)=2x\sinh^2 x$.

28. Find the derivative of $f(x)=|2x+1|$.

29. Find $\frac{dy}{dx}$ for $y=(1-x)^x$ for $x<1$

30. Find $\frac{dy}{dx}$ for $\ln(xy^2)=x^2+y^2$

31. For $y=f(x)$ shown below, sketch a possible graph of $f'(x)$.



32. Find the derivative of $f(x)=\frac{1}{x+2}$, using the definition of the derivative.

33. Find $f''(x)$ where $f(x)=x\sin(6x)$.

34. At which points on the curve $y=x+2\sin x,\ 0\le x<2\pi$ is the tangent line horizontal?

35. Find an equation of the tangent line to the curve $\sqrt[3]{x}+\sqrt[3]{y^4}=2$ at $(1,1)$.

36. Answer the following, using the table below to find:

X	g(x)	h(x)	g'(x)	h'(x)
-3	0	3	1	0
-2	1	2	2	-3
-1	3	0	-1	-2
0	2	3	-2	3
1	0	-1	-2	-2
2	-2	-2	-1	0
3	-3	0	0	1

a. $f'(3)$ if $f(x)=5g(x)-4h(x)$.

b. $f'(2)$ if $f(x)=\frac{2g(x)}{h(x)}$.

c. $f'(-2)$ if $f(x)=g(h(x))$.

d. $f'(-1)$ if $f(x)=\sqrt{g(x)}$.

e. If $f(x)=h(x^2g(x))$, find an equation of the tangent line at $x=-1$.

37. Find $f(x)$ if $f'(x)\frac{3x^2}{\sqrt{x^3+1}}$ where $f(2)=6$.

Be sure to look at the link for Derivatives to KNOW. For additional problems, check out the review problems for Chapter 2. Note the questions above are simply a sample of questions possible for the exam; it is possible that other types of questions may appear on your exam.