Name : _____

Practice 2-1 to 2-4

For the following functions, find the derivative using the power rule.

4) $y=\frac{8}{3x^2}$

5) $y=\frac{-9}{\left(3x^2\right)^3}$

6) $y=\frac{6x^{3/2}}{x}$

7) $y=\frac{4x^2-5x+6}{3}$

8) $y=\frac{x^2-6x+2}{2x}$

9) $y=\frac{x^3+8}{x+2}$

10) $y=x^4-\frac{3}{2}x^3+5x^2-6x-2$

11) $y=\frac{x^3-3x^2+10x-5}{x^2}$

12) $y=\left(x^2+4x\right)\left(2x-1\right)$

13) $y=\left(x-2\right)^3$

14) $y=\sqrt[3]{x}-\sqrt[3]{x^2}$

15) $y=\frac{\left(x^2-x+2\right)^2}{x}$

For the following functions, find the derivatives.

16) $y=\left(x^2-4x-6\right)\left(x^3-5x^2-3x\right)$

17) $y=\frac{3x-2}{2x+3}$

18) $y=\frac{x^2-4x-2}{x^2-1}$

19) $y=\frac{x-1}{\sqrt{x}}$

20) $y=\frac{x^2-x+1}{\sqrt[3]{x}}$

21) $y=\left(\frac{x-3}{x+4}\right)\left(3x-2\right)$

Find an equation of the tangent line to the graph of f at the indicated point and then use your calculator to confirm the results.

25) $f(x)=\dfrac{x^2}{x-1}$ at $(2,4)$

26) $f(x)=(x-2)(x^2-3x-1)$ at $(-1,-9)$

27) $f(x)=\dfrac{x^2-4x+2}{2x-1}$ at $\left(2,-\dfrac{2}{3}\right)$

28) $y=\left(\dfrac{x+3}{x+1}\right)(4x+1)$ at $\left(-\dfrac{1}{2},-5\right)$

Use the chart to find $h'(4)$

$f(4)$	$f'(4)$	$g(4)$	$g'(4)$
-8	3	3π	4

31) $h(x)=5f(x)-\dfrac{2}{3}g(x)$

32) $h(x)=3+8f(x)$

33) $h(x)=f(x)g(x)$

34) $h(x)=\dfrac{f(x)}{g(x)}$

35) $h(x)=\dfrac{g(x)}{f(x)}$

36) $h(x)=\dfrac{f(x)+2}{-3g(x)}$