Differentiation Rules

In problems 1-24, find the derivative of the function

1. $f(x)=8$	2. $f(x)=3x^4$
3. $f(x)=7x^5-2x+5$	4. $f(x)=\dfrac{5x^2}{3}$
5. $f(x)=8x-2$	6. $f(x)=x^4-2x^2+1$
7. $f(x)=x^{-3}+4x-2$	8. $f(x)=7x^2+3x-5$
9. $f(x)=\dfrac{1}{x}+3x-4$	10. $f(x)=x^{\frac{3}{5}}$
11. $f(x)=x^{\frac{1}{4}}+x-2$	12. $f(x)=5x^{-2}-x^{-1}$
13. $f(x)=\dfrac{4}{x^6}$	14. $f(x)=\dfrac{2}{(3x^2)^3}$
15. $f(x)=\dfrac{1}{(4x)^{-2}}$	16. $f(x)=3\sqrt{x}$
17. $f(x)=\sqrt[3]{7x}$	18. $f(x)=\dfrac{1}{2\sqrt[6]{x}}$
19. $f(x)=x^3-7x^{-3}+\dfrac{2}{x^2}$	20. $f(x)=x^3-x^2+4-\dfrac{3}{x}$
21. $f(x)=\sqrt[8]{x^3}-2x$	22. $f(x)=(x+3)(x-5)$
23. $f(x)=\dfrac{x^2-4x+2}{x^5}$	24. $f(x)=\dfrac{x^4-3x^3+x^2-7x+2}{x}$

In problems 25-28, find the slope of the graph at the given point

25. $f(x)=x^2-5x+2;\ \ (2,-4)$	26. $f(x)=x^3-x-1;\ \ (3,23)$
27. $f(x)=\sqrt[3]{x};\ \ (8,2)$	28. $f(x)=\dfrac{1}{x^2};\ \ \left(2,\dfrac{1}{4}\right)$

In problems 29-31, find the equation of the tangent line at the given point

29. $f(x)=x^2+7x-1;\ \ (1,7)$	30. $f(x)=\sqrt[5]{x^2}-3;\ \ (32,1)$
31. $f(x)=x^3-7x+2;\ \ (1,-4)$	

Differentiation Rules

In problems 32-33, find the point(s) at which the graph has a horizontal tangent line

32. $f(x) = x^3 - 12x^2 + 36x + 6$	33. $f(x) = x^2 - 10x + 6$