The Chain Rule - Key

In problems 1-8, Use the general power rule to find the derivative of the function.

1. $f'(x) = 12(3x-5)^3$	2. $f'(x) = \dfrac{8}{3}(x+2)(x^2+4x)^{1/3}$
3. $f'(x) = 3x(3x-2)(x^3-x^2-7)^2$	4. $f'(x) = \dfrac{11}{2\sqrt{11x-2}}$
5. $f'(x) = \dfrac{3x-4}{\sqrt{3x^2-8x+1}}$	6. $f'(x) = \dfrac{2x}{5(x^2-3)^{4/5}}$
7. $f'(x) = \dfrac{-140}{(7x+2)^5}$	8. $f'(x) = \dfrac{-36x}{5(5-x^2)^{11/5}}$

In problems 9-11, Find an equation of the tangent line to the graph of f at the given point.

9. $y = 48x+56$	10. $y = \dfrac{7}{6}x + \dfrac{11}{6}$
11. $y = \dfrac{-1}{10}x + \dfrac{53}{10}$	

In problems 12-16, Find the derivative of the function.

12. $y' = \dfrac{-24x}{(4x^2-3)^2}$	13. $f'(x) = \dfrac{-280}{(5x+1)^8}$
14. $f'(x) = 15x^2 - 36x - 8$	15. $f'(x) = \dfrac{-27}{2(9x-1)^{3/2}}$
16. $f'(x) = 4(49x-2)(7x-2)^5$	

In problems 17-18, Find an equation of the tangent line to the graph of f at the given point.

17. $y = -6x - 16$	18. $y = \dfrac{-1}{6}x + \dfrac{13}{6}$

19.

a) 82,009.77
b) 134,233.46
c) 219,270.79

20.

a) $V = \dfrac{5000\sqrt{3}}{\sqrt{t+3}}$

b) -541.27

c) -191.37