Practice the following problems using rules of derivative (power, multiplicative, quotient rules)

26. $F(x) = (-3x^2 + 4x)(7\sqrt{x} + 1)$

26. $-\frac{105}{2}x^{3/2} - 6x + 42x^{1/2} + 4$

34. $f(x) = 6x^{-4}(6x^3 + 10x^2 - 8x + 3)$

34. $-36x^{-2} - 120x^{-3} + 144x^{-4} - 72x^{-5}$

40. $y = \frac{\sqrt{x} + 4}{\sqrt[3]{x} - 5}$

40. $\frac{\sqrt{x} - 15x^{1/6} - 8}{6x^{2/3}(\sqrt[3]{x} - 5)^2}$

46. $f(x) = \frac{3x^2 - 5x}{x^2 - 1}$

46. $\frac{5x^2 - 6x + 5}{(x^2 - 1)^2}$

52. Find an equation of the line tangent to the graph of $y = x^2 + 3/(x - 1)$ at **(a)** $x = 2$; **(b)** $x = 3$.

52. (a) $y = x + 5$;
(b) $y = \frac{21}{4}x - \frac{21}{4}$

60. Average profit. Cruzin' Boards has found that the cost, in dollars, of producing x skateboards is given by

$$C(x) = 900 + 18x^{0.7}.$$

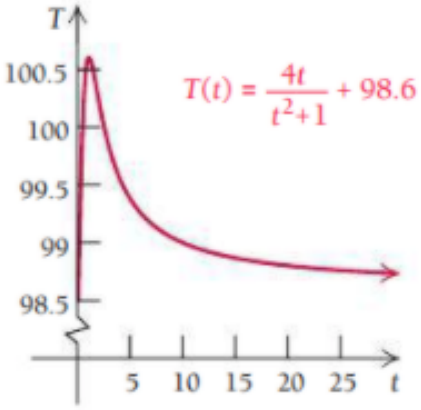
If the revenue from the sale of x skateboards is given by $R(x) = 75x^{0.8}$, find the rate at which average profit per skateboard is changing when 20 skateboards have been built and sold.

60. \$1.95/skateboard

62. Temperature during an illness. Gina's temperature T during a recent illness is given by

$$T(t) = \frac{4t}{t^2 + 1} + 98.6,$$

where T is the temperature, in degrees Fahrenheit, at time t, in hours.



a) Find the rate of change of Gina's temperature with respect to time.
b) Find Gina's temperature at $t = 2$.
c) Find the rate of change of Gina's temperature at $t = 2$.
d) Find Gina's temperature after 1 day (at $t = 24$ hr).
e) Find the rate of change of Gina's temperature after 1 day.

62. (a) $T'(t) = -\dfrac{4t^2 - 4}{(t^2 + 1)^2}$; **(b)** 100.2 degrees; **(c)** −0.48 degree/hr; **(d)** 98.77 degrees; **(e)** −0.0069 degree/hr