5. $f(x) = e^{\ln x^2} + \frac{4}{\sqrt[5]{x^4}} = x^2 + 4x^{-\frac{4}{5}}$

$f'(x) = 2x + 4\left(\frac{-4}{5}\right)x^{-\frac{4}{5}-1}$

$= 2x + \frac{16}{5}x^{-\frac{9}{5}} = 2x + \frac{16}{5\sqrt{x^9}}$

18. $\frac{d}{dt}\left[(e^t)(t+3)\right]$ $e^t(t+K)$ find K

$= (e^t)(1) + (t+3)(e^t)$

$= e^t + te^t + 3e^t$

$= te^t + 4e^t$ $K = 4$

$= e^t(t+4)$

Cornell Notes	Topic/Objective: 7.4 The Chain Rule and higher order derivatives	Name:
AVID Decades of College Dreams		Class/Period: 3
		Date: 11/9/17

Essential Question: what is the chain rule and when is it used?

Questions:	Notes:
	to find the derivative of a composite function, we use the Chain Rule:
	if $f(x) = u(v(x))$ then $f'(x) = u'(v(x)) \cdot v'(x)$
	der out · in · der in
	if $y = f(u)$, $u = g(x)$ and $y = f(g(x))$ then $\frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx}$

Questions:	Notes:
	Ex) $f(x) = 4(5x^3+2)^6$
$4y^{6}$	$f'(x) = 24(5x^3+2)^5 \cdot 15x^2$
$24y^{5}$	$= 360x^2(5x^3+2)^5$
	Ex) $f(x) = \sqrt{4x^2+1} = (4x^2+1)^{\frac{1}{2}}$
# x ( )	$f'(x) = \frac{1}{2}(4x^2+1)^{-\frac{1}{2}} \cdot 8x$
	$= 4x(4x^2+1)^{-\frac{1}{2}}$
	$= \frac{4x}{\sqrt{4x^2+1}}$
	Ex) $f(x) = e^{x^2} = e^{(x^2)}$
	$f'(x) = e^{x^2} \cdot 2x$
	$= 2xe^{x^2}$
	Hw 7K p. 217 #1-10

Questions:	Notes: