* Office Hours!

* Tutoring center

  teachingcenter.ufl.edu

$$f(x) = \frac{x^3+2x-e^x}{x^2} \Big\}$$ quotient rule

$$f'(x) = \frac{x^2 \frac{d}{dx}(x^3+2x-e^x) - (x^3+2x-e^x)\frac{d}{dx}(x^2)}{(x^2)^2}$$

$$\boxed{f'(x) = \frac{x^2\left[3x^2+2-e^x\right] - (x^3+2x-e^x)(2x)}{(x^2)^2}}$$

$$f(x) = \boxed{\tan(x)\cos(x)} + \underbrace{\sin(x)\cos(x)}$$

$$\frac{\sin(x)}{\cos(x)} \cdot \cos(x) = \sin(x)$$

$$f'(x) = \frac{d}{dx}(\tan x)\cos(x) + (\tan x)\frac{d}{dx}(\cos x) + \frac{d}{dx}(\sin x)(\cos x)$$
$$+ (\sin(x))\frac{d}{dx}(\cos(x))$$

$$\boxed{f'(x) = \sec^2 x \cos(x) + \tan x(-\sin x) + \cos(x)\cos(x) + \sin(x)(-\sin(x))}$$

Find the eq. of the tangent line of

$f(x) = 5\sqrt[3]{x}$ at the point $\underline{x = 8}$

point: $f(8) = 5\sqrt[3]{8} = 5 \cdot 2 = 10$

$\boxed{\checkmark \text{Point} = (8, 10)}$

$\boxed{y - 10 = \frac{5}{12}(x - 8)}$

slope: $f'(x) = \qquad = \frac{5}{3}x^{-2/3} = \frac{5}{3\sqrt[3]{x^2}}$

$x = 8$

$f'(8) = \frac{5}{3\sqrt[3]{64}} = \frac{5}{3 \cdot 4} = \boxed{\frac{5}{12} = m}$