Review

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1. $\lim_{x\to\infty} \frac{\sin x}{x} \overset{\text{Squeeze Thm}}{=} 0$
2. $(\ln 2)' = 0$
3. $\frac{\mathrm{d}}{\mathrm{d}x} f^{-1}(2) = \frac{1}{f'(f^{-1}(1))} = \frac{1}{4}$
4. 0^0 is a indeterminate form is True
5. $x^{\frac{1}{x}} \implies f'(x) = e^{\frac{1-\ln x}{x^2}} = 0 \implies x = e \implies f(e) = e^{\frac{1}{e}}$
6. If $f(x)$ and $g(x)$ as the same second derivative, then $f(x) - g(x) = Bx + C$ for some $B, C \in \mathbb{R}$
7. If $f(x)$ and $g(x)$ are not differentiable at $x = a$, but $f(x)g(x)$ might be differentiable. i.e. $\operatorname{sgn}(x) \cdot |x| = x$
8. Graph of $y = \frac{x^2}{3}$ is not concave up. $f''(x) = -\frac{2}{9}x^{-\frac{4}{3}} \leq 0 \ \forall x \in \mathbb{R}$ except at $x = 0$ as not differentiable
9. The derivative of implicit curve $x^2 + 6x + 2y^2 + 3y + 11 = 0$ which is DNE: $(x+3)^2 + 2\big(y^2 + 3\frac{y}{2} + \frac{9}{16}\big) + \frac{14}{16} \neq 0$
10. If $f(x) = ax^2 + bx + c$ then $|f(x) - L_p^f(x)| \leq a(x-p)^2$

    Note that $M = 2a \implies \frac{2a}{2}(x-p)^2$
11. Bounded Derivative Theorem
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