TRIGONOMETRIC IDENTITIES
- $\sin^2(x) + \cos^2(x) = 1$
- $\tan(x) = \frac{\sin(x)}{\cos(x)}$ \hspace{1em} $\cot(x) = \frac{\cos(x)}{\sin(x)}$
- $\sec(x) = \frac{1}{\cos(x)}$ \hspace{1em} $\csc(x) = \frac{1}{\sin(x)}$

TRIGONOMETRIC DERIVATIVES
- $\sin'(x) = \cos(x)$ \hspace{1em} $\cos'(x) = -\sin(x)$
- $\tan'(x) = \sec^2(x)$ \hspace{1em} $\cot'(x) = -\csc^2(x)$
- $\sec'(x) = \sec(x)\tan(x)$ \hspace{1em} $\csc'(x) = -\csc(x)\cot(x)$

CHAIN RULE
If $f$ and $g$ are differentiable, then so is $f(g(x))$ and
\[
(f(g(x)))' = f'(g(x))g'(x)
\]

CHAIN RULE IN $\frac{d}{dx}$ NOTATION
If $y$ is a function of $u$ and $u$ is a function of $x$ then
\[
\frac{dy}{dx} = \frac{dy}{du} \cdot \frac{du}{dx}
\]

- $\sqrt{2}\tan\left(\frac{3}{x}\right)' =$
- $y = y = u^4, \ u = \tan x, \ x = \sin t, \ \frac{dy}{dt} =$

Rest of the time in a long group-work session.