Calculus C - Warm Up - 7.2

① Use $\cos^2 x + \sin^2 x = 1$ and $\cos^2 x - \sin^2 x = \cos 2x$ to derive the half-angle identities:

$\cos^2 x = \frac{1}{2}(1 + \cos 2x)$ and $\sin^2 x = \frac{1}{2}(1 - \cos 2x)$

② Divide $\cos^2 x + \sin^2 x = 1 \ldots$

by $\cos^2 x$ to derive a formula for $\tan^2 x$ in terms of $\sec^2 x$.

by $\sin^2 x$ to derive a similar formula for cot.

③ $\frac{d}{dx}[\csc x] =$

⑤ $\frac{d}{dx}[\cot x] =$

④ $\frac{d}{dx}[\tan x] =$

⑥ $\frac{d}{dx}[\sec x] =$