MATH 228 Assignment 3

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3. Solve the differential equation

$$y' = \cos(x)\cos^2(2y).$$

$$\frac{\mathrm{d}y}{\mathrm{d}x} = \cos(x)\cos^2(2y)$$

$$\sec^2(2y)\,\mathrm{d}y = \cos(x)\,\mathrm{d}x$$

$$\tfrac{1}{2}\tan 2y = \sin x + C_1$$

$$2y = \tan^{-1}(2\sin x + C)$$

$$\boxed{y = \tfrac{1}{2}\tan^{-1}(2\sin x + C)}$$