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$y' = -2C_1 \sin(2x) + 2C_2 \cos(2x)$

$y'(\pi/2) = 1$

$1 = -2C_1 \sin(\pi) + 2C_2 \cos(\pi)$

$y'(\pi) = 0$

$0 = -2C_1 \sin(2\pi) + 2C_2 \cos(2\pi)$

$1 = -2C_1 + 2C_2(0)$

$0 = -2C_1(0) + 2C_2(1)$

$C_1 = -1/2$

$C_2 = 0$