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Find the particular antiderivative that satisfies the following conditions:

$$\frac{dy}{dx} = 6x^{-2} + 8x^{-1} - 6; \quad y(1) = 4.$$

$y =$

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$$\int 6x^{-2} dx = \frac{6x^{-2+1}}{-2+1} = \frac{6x^{-1}}{-1} = -\frac{6}{x}$$

$$\int 2x^3 dx = \frac{2x^4}{4}$$

$$y = 6 \cdot 1^{-2} + 8 \cdot 1^{-1} - 6$$

$$\int \frac{dy}{dx} = \int (6x^{-2} + 8x^{-1} - 6) dx$$
$$y = \frac{-6}{x} + 8 \ln|x| - 6x + C$$
$$y(1) = 4$$
$$4 = \frac{-6}{1} + 8 \ln|1| - 6 \cdot 1 + C$$
$$4 = -12 + C$$
$$C = 16$$

$$y = \frac{-6}{x} + 8 \ln|x| - 6x + 16$$