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4.

$$(\cos x)\frac{dy}{dx} + (\sin x)y = 2\cos^3 x \sin x - 3 \qquad 0 \leqslant x < \frac{\pi}{2}$$

(a) Find the general solution of this differential equation. Give your answer in the form $y = f(x)$.

(7)

(b) Find the particular solution of this differential equation for which $y = 3\sqrt{3}$ at $x = \frac{\pi}{3}$

Give your answer in the form $y = f(x)$.

(3)

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