Section 31.4: Linear DEs of first order

Monday, February 6, 2017 1:43 PM

suppose you are able to rewrite a DE into the form

$$\frac{dy}{dx} + P(x)\,y = Q(x)$$

↑ functions of x only ↗

this DE is called "linear of first order"

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example: Are the following linear, first-order DEs? If so, give $P(x)$ and $Q(x)$.

a) $y' + \frac{y}{x} = x^3$ yes, $P(x) = \frac{1}{x}$, $Q(x) = x^3$

b) $\frac{dy}{dx} + y^2 = e^x$ no