7D Finding Constants of Second Order Differential Equations

1. Find y in terms of x, given that:

$$\frac{d^2y}{dx^2} - y = 2e^x$$

And that when x = 0,

$$y = 0 \ and \ \frac{dy}{dx} = 0$$

2. Given that the particular integral is of the form:

$$\lambda sin2t$$

Find the solution of the differential equation:

$$\frac{d^2x}{dt^2} + x = 3sin2t$$

When t = 0, x = 0 and $^{dx}/_{dt}$ = 1