Answer 4

To set up the linear combination with undetermined coefficients, we look at the right side of the given nonhomogeneous differential equation: $x^3 + x + e^{-2x}$

We can try three undetermined coefficients:

One for the highest degree term x^3, we will call that constant k_1: $k_1 x^3$

" " " x term , " " " " " k_2: $k_2 x$

" " " constant " , " " " " " k_3: $k_3 e^{-2x}$

So the linear combination with undetermined coefficients is:

$$y = k_1 x^3 + k_2 x + k_3 e^{-2x}$$

* (where k_1, k_2 and k_3 are undetermined coefficients to be found)

As a result, the linear combination of funtions with undetermined literal coefficients for this equation is:

$$\boxed{y = k_1 x^3 + k_2 x + k_3 e^{-2x}}$$