

**Solution** (#1646)(i)

$$y = Ae^x + Be^{-x} - x.$$

(ii)

$$y = A \sin 2x + B \cos 2x + \frac{3}{4}x^2 - \frac{3}{8}.$$

(iii)

$$y = Ae^{-x} + Be^{-2x} + \frac{1}{10} \sin x - \frac{3}{10} \cos x.$$

(iv)

$$y = e^{-x}(A \cos \sqrt{2}x + B \sin \sqrt{2}x) + \left( \frac{x}{3} - \frac{2}{9} + \frac{1}{4} \cos x + \frac{1}{4} \sin x \right).$$