

7 Q1 P.I. of $(D^2 + 9)y = \sin 3x$ is

(a) $-\frac{x}{24} \cos 3x$
 (b) $\frac{x}{24} \cos 3x$
 (c) $-\frac{9x}{2} \cos 3x$
 (d) $\frac{9x}{2} \cos 3x$

Answer (a)

8 Q1 P.I. of $\frac{dy}{dx} - \frac{dy}{dx} - 2y = \cos x + 3 \sin x$ is

(a) ~~cos x~~ $\sin x$
 (b) ~~sin x~~ $\cos x$
 (c) $-\sin x$
 (d) $-\cos x$

Answer (c)

9 Q1 Particular of $(D^2 - 2D + 5)^2 y = 0$ is

(a) $e^{2x} \{ (1 + 4x) \cos 2x + (3 + 4x) \sin 2x \}$
 (b) $e^{2x} \{ (1 + 4x) \cos x + (3 + 4x) \sin x \}$
 (c) $(C_1 e^{2x} + C_2 e^{4x}) \cos x + (3e^{2x} + 4e^{4x}) \sin x$
 (d) $e^x (C_1 \cos x + C_2 \cos 2x + (3 \sin x + 4 \sin 2x))$

Answer (a)

10 Q1 The general solution of $\frac{d^4 y}{dx^4} - 6 \frac{d^3 y}{dx^3} + 12 \frac{d^2 y}{dx^2} - 8 \frac{dy}{dx} = 0$ is

(a) $y = C_1 + (C_2 + (3x + 4x^2)) e^{2x}$
 (b) $y = (C_1 + C_2 x + 3x^2) e^{2x}$
 (c) $y = C_1 + C_2 x + (3x^2 + 4x^3)$
 (d) $y = C_1 + C_2 x + (3x^2 + 4x^2) e^{2x}$

Answer (a)

11 Q1 Two L.I. solutions of $4 \frac{d^2 y}{dx^2} + 4 \frac{dy}{dx} + 5y = 0$ are

(a) $e^{-x/4} \cos x$ and $e^{-x/4} \sin x$
 (b) $e^{x/4} \cos x$ and $e^{x/4} \sin x$
 (c) $e^{x/4} \cos x$ and $e^{-x/4} \sin x$
 (d) $e^{-x/4} \cos x$ and $e^{x/4} \sin x$

Answer (a)

12 Q1 P.I. of $\frac{d^2 y}{dx^2} + \frac{dy}{dx} = x^2 + 2x + 4$ is

(a) $\frac{x^3}{3} + 4x$
 (b) $\frac{x^3}{3} + 4x$
 (c) $\frac{x^3}{3} + 4$
 (d) $\frac{x^3}{3} + 4x^2$

Answer (b)