

9. A particular solution of the differential equation $y'' + 2y' + y = e^{-x}$ is

Select the correct answer.

- (a) $y_p = x^2 e^{-x} / 2$
 - (b) $y_p = x e^{-x} / 2$
 - (c) $y_p = x e^{-x}$
 - (d) $y_p = e^{-x}$
 - (e) $y_p = e^{-x} / 4$
- (17)

10. A particular solution of the differential equation $y'' - 3y' - 4y = e^{4x}$ is

Select the correct answer.

- (a) $y_p = x^2 e^{4x}$
 - (b) $y_p = x e^{4x} / 7$
 - (c) $y_p = x e^{4x} / 5$
 - (d) $y_p = e^{4x}$
 - (e) $y_p = e^{4x} / 9$
- (18)

11. Without solving for the undetermined coefficients, the correct form of a particular solution of the differential equation $y'' + 9y = \sin(3x)$ is

Select the correct answer.

- (a) $y_p = A \cos(3x)$
 - (b) $y_p = Ax \cos(3x) + Bx \sin(3x)$
 - (c) $y_p = A \sin(3x)$
 - (d) $y_p = Ax \cos(3x) + B \sin(3x)$
 - (e) $y_p = A \cos(3x) + B \sin(3x)$
- (19)

12. Without solving for the undetermined coefficients, the correct form of a particular solution of the differential equation $y'' + 6y' + 13y = e^{-3x} \cos(2x)$ is

Select the correct answer.

- (a) $y_p = Ae^{-3x} \cos(2x)$
 - (b) $y_p = Ae^{-3x} \cos(2x) + Be^{-3x} \sin(2x)$
 - (c) $y_p = Ae^{-3x} \cos(2x)$
 - (d) $y_p = Axe^{-3x} \cos(2x) + Bxe^{-3x} \sin(2x)$
 - (e) $y_p = Axe^{-3x} \cos(2x) + Be^{-3x} \sin(2x)$
- (20)