



@COMPUTERENGINEE
RINGDEPARTMENT22

If

$$y_p = u_1(t) \cos(5t) + u_2(t) \sin(5t)$$

is a particular solution of the
differential equation

$$y'' + 25y = \sec(5t) \tan(5t),$$

$u_2(t) =$ then



$$-\frac{1}{25} \ln |\cos(5t)| \quad \text{radio button}$$

$$\frac{1}{5}t - \frac{1}{25} \tan(5t) \quad \text{radio button}$$

$$\frac{1}{25} \ln |\cos(5t)| \quad \text{radio button}$$

none of the given answers is
true

$$-\frac{1}{5}t + \frac{1}{25} \tan(5t) \quad \text{radio button}$$

الإجابة الصحيحة هي:

$$-\frac{1}{25} \ln |\cos(5t)|$$

Use the method of reduction of order to find the general of the differential equation

$$(t^2 - 3)y'' - 2ty' + 2y = 12t(t^2 - 3)^2$$

where $y_1(t) = t$ is a solution of

$$(t^2 - 3)y'' - 2ty' + 2y = 0.$$

$y = c_1t + c_2(t^2 - 3) + t^5 - 6t^3$ ☐

$y = c_1t + c_2(t^2 + 3) + t^5 + 6t^3$ ☐

✓ $y = c_1t + c_2(t^2 + 3) + t^5 - 6t^3$ ☒

none of the given answers is
true ☐

$y = c_1t + c_2(t^2 - 3) + t^5 + 6t^3$ ☐

الإجابة الصحيحة هي:

$$y = c_1t + c_2(t^2 + 3) + t^5 - 6t^3$$

سؤال 6

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$y'' + 5y' + 6y = 2te^{-3t}.$$

☒ $y = c_1e^{-2t} + c_2e^{-3t} - 2te^{-3t} - t^2e^{-3t}$ ☐

$y = c_1e^{-2t} + c_2e^{-3t} + 2te^{-3t} + t^2e^{-3t}$ ☐

$y = c_1e^{-2t} + c_2e^{-3t} - 2te^{-3t} + t^2e^{-3t}$ ☐

none of the given answers is true ☐

$y = c_1e^{-2t} + c_2e^{-3t} + 2te^{-3t} - t^2e^{-3t}$ ☐

الإجابة الصحيحة هي:

$$y = c_1e^{-2t} + c_2e^{-3t} - 2te^{-3t} - t^2e^{-3t}$$

Find the general solution of the differential equation

$$y'' + 16y = \sec(4t) \tan(4t).$$

$$c_1 \cos(4t) + c_2 \sin(4t) - \frac{1}{4}t \cos(4t) + \frac{1}{16} \sin(4t) \ln |\cos(4t)| \quad \text{○}$$

$$c_1 \cos(4t) + c_2 \sin(4t) + \frac{1}{4}t \cos(4t) - \frac{1}{16} \sin(4t) \ln |\cos(4t)| \quad \text{●}$$

$$c_1 \cos(4t) + c_2 \sin(4t) + \frac{1}{4}t \sin(4t) + \frac{1}{16} \cos(4t) \ln |\sin(4t)| \quad \text{○}$$

none of the given answers is ☐

Find the general solution of the differential equation

$$y'' + 5y' + 6y = 2te^{-3t}.$$

$$y = c_1 e^{-2t} + c_2 e^{-3t} - 2te^{-3t} - t^2 e^{-3t} \quad \text{●}$$

$$y = c_1 e^{-2t} + c_2 e^{-3t} + 2te^{-3t} + t^2 e^{-3t} \quad \text{○}$$

$$y = c_1 e^{-2t} + c_2 e^{-3t} - 2te^{-3t} + t^2 e^{-3t} \quad \text{○}$$

سؤال 6

صحيح

درجة 1.0 من 1.0.

علم السؤال

سؤال 4

صحيح

درجة 1.0 من 1.0

علم السؤال

Find a suitable form for particular solution of the differential equation

$$y'' - 25y = e^{5t}(t + 1).$$

$$y_p = A_0 t^2 e^{5t} \quad \text{○}$$

✓ $y_p = t e^{5t} (A_1 t + A_0) \quad \text{●}$

$$y_p = e^{5t} (A_1 t + A_0) \quad \text{○}$$

none of the given answers is true ☐

$$y_p = t^2 e^{5t} (A_1 t + A_0) \quad \text{○}$$

الإجابة الصحيحة هي:

$$y_p = t e^{5t} (A_1 t + A_0)$$

Find a particular solution of the differential equation

$$2y'' + 3y' + y = t - 1 + \sin(2t).$$

✗ $y_p = t + 4 - \frac{7}{85}\cos(2t) - \frac{6}{85}\sin(2t)$ ☒

$y_p = t + 4 + \frac{7}{85}\cos(2t) + \frac{6}{85}\sin(2t)$ ☐

$y_p = t - 4 - \frac{6}{85}\cos(2t) - \frac{7}{85}\sin(2t)$ ☐

none of the given answers is true ☐

$y_p = t - 4 + \frac{6}{85}\cos(2t) + \frac{7}{85}\sin(2t)$ ☐

الإجابة الصحيحة هي:

$$y_p = t - 4 - \frac{6}{85}\cos(2t) - \frac{7}{85}\sin(2t)$$

سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

Find a particular solution of the differential equation

$$y'' + y' - 2y = -2e^{-t}.$$

$y_p = -e^{-t}$ ☐

$y_p = 2e^{-t}$ ☐

$y_p = -2e^{-t}$ ☐

none of the given answers is ☐

true



$y_p = e^{-t}$ ☒

الإجابة الصحيحة هي: $y_p = e^{-t}$

Let u_1 and u_2 be two solutions
of the nonhomogeneous
equation

$$L[y] = y'' + y' + y = \cos(t).$$

Then $y = u_1 - u_2$ is a solution
of

$L[y] = y'' + y' + y = -\cos(t)$ ☐

$L[y] = y'' + y' + y = 2\cos(t)$ ☐

None of the given equations ☐

✓ $L[y] = y'' + y' + y = 0$ ☒

$L[y] = y'' + y' + y = \cos(t)$ ☐

الإجابة الصحيحة هي:

$$L[y] = y'' + y' + y = 0$$

سؤال 7

خطأ

درجة 0.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$y'' + 9y = 2 \csc^3(3t).$$

none of the given answers is true ☐

$$y = c_1 \cos(3t) + c_2 \sin(3t) + \frac{1}{18} \csc(3t) \quad \text{○}$$

$$y = c_1 \cos(3t) + c_2 \sin(3t) - \frac{1}{18} \csc(3t) \quad \text{○}$$

$$\times \quad y = c_1 \cos(3t) + c_2 \sin(3t) - \frac{1}{9} \csc(3t) \quad \text{●}$$

$$y = c_1 \cos(3t) + c_2 \sin(3t) + \frac{1}{9} \csc(3t) \quad \text{○}$$

الإجابة الصحيحة هي: $y = c_1 \cos(3t) + c_2 \sin(3t) + \frac{1}{9} \csc(3t)$

سؤال 6

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$y'' + 3y' + 2y = 8te^{-t}.$$

$$y = c_1 e^{-t} + c_2 e^{-2t} - 8te^{-t} - 4t^2 e^{-t} \quad \text{○}$$

$$\checkmark \quad y = c_1 e^{-t} + c_2 e^{-2t} - 8te^{-t} + 4t^2 e^{-t} \quad \text{●}$$

none of the given answers is true ☐

$$y = c_1 e^{-t} + c_2 e^{-2t} + 8te^{-t} - 4t^2 e^{-t} \quad \text{○}$$

$$y = c_1 e^{-t} + c_2 e^{-2t} + 8te^{-t} + 4t^2 e^{-t} \quad \text{○}$$

الإجابة الصحيحة هي: $y = c_1 e^{-t} + c_2 e^{-2t} - 8te^{-t} + 4t^2 e^{-t}$

Use the method of reduction of order to find the general of the differential equation

$$(t^2 - 3)y'' - 2ty' + 2y = 12t(t^2 - 3)^2$$

where $y_1(t) = t$ is a solution of

$$(t^2 - 3)y'' - 2ty' + 2y = 0.$$



$y = c_1 t + c_2(t^2 + 3) + t^5 - 6t^3$ ☒

$y = c_1 t + c_2(t^2 - 3) + t^5 - 6t^3$ ☐

none of the given answers is true ☐

$y = c_1 t + c_2(t^2 - 3) + t^5 + 6t^3$ ☐

$y = c_1 t + c_2(t^2 + 3) + t^5 + 6t^3$ ☐

الإجابة الصحيحة هي: $y = c_1 t + c_2(t^2 + 3) + t^5 - 6t^3$

[إنهاء المراجعة](#)

النشاط التالي

Final 2021 صيفي

الانتقال إلى...

النشاط السابق

Homework4

سؤال 9

صحيح

درجة 1.0 من 1.0

علم السؤال

7:29

3.54
KB/s



70



الرئيسية



Find a suitable form for particular solution of the

$y'' + 9y = e^{3t}(t + 1)$. differential equation

$y_p = A_0 t^2 e^{3t}$ ☐

$y_p = t e^{3t}(A_1 t + A_0)$ ☐

none of the given answers is true ☐

$y_p = t^2 e^{3t}(A_1 t + A_0)$ ☐



$y_p = e^{3t}(A_1 t + A_0)$ ☒

الإجابة الصحيحة هي: $y_p = e^{3t}(A_1 t + A_0)$

سؤال 4

صحيح

درجة 1.0 من 1.0

علم السؤال





سؤال 1

خطأ

درجة 0.0 من 1.0

علم السؤال

Let u_1 and u_2 be two solutions of the equation $y'' - yy' + y = \sin(t)$, Then $y = u_1 + u_2$ is a solution of

✗

$y'' - yy' + y = 0$ ☐

$y'' - yy' + y = 2 \sin(t)$ ☒

$y'' - yy' + y = -\sin(t)$ ☐

None of the given equations ☐

$y'' - yy' + y = \sin(t)$ ☐

الإجابة الصحيحة هي: None of the given equations

Find a suitable form for particular solution of the differential equation

$$y'' - 3y' + 2y = t^2 e^t - (3t - 1) \cos(2t).$$

$t^2 + A_1 t + A_0 + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)]$ ☒

$t^2 + A_1 t + A_0 + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)]$ ☐

$y_p = t e^t (A_2 t^2 + A_1 t + A_0) + (B_1 t + B_0) \cos(2t)$ ☐

$t^2 + A_1 t + A_0 + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)]$ ☐

none of the given answers is true ☐

الإجابة الصحيحة هي:

$t^2 (A_2 t^2 + A_1 t + A_0) + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)]$

سؤال 5

صحيح

درجة 1.0 من 1.0

علم السؤال

سؤال 3

صحيح

درجة 1.0 من 1.0

علم السؤال

Find a particular solution of the differential equation

$$2y'' + 3y' + y = t + 1 - 2\sin(2t).$$

$$y_p = t + 2 - \frac{14}{85}\cos(2t) - \frac{12}{85}\sin(2t) \quad \text{○}$$



$$y_p = t - 2 + \frac{12}{85}\cos(2t) + \frac{14}{85}\sin(2t) \quad \text{●}$$

$$y_p = t + 2 + \frac{14}{85}\cos(2t) + \frac{12}{85}\sin(2t) \quad \text{○}$$

none of the given answers is true ○

$$y_p = t - 2 - \frac{12}{85}\cos(2t) - \frac{14}{85}\sin(2t) \quad \text{○}$$

الإجابة الصحيحة هي: $y_p = t - 2 + \frac{12}{85}\cos(2t) + \frac{14}{85}\sin(2t)$

سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

Find a particular solution of the differential equation

$$y'' - 4y' + 4y = 2e^{-2t}.$$

$$y_p = -8e^{-2t} \quad \text{○}$$



$$y_p = \frac{1}{8}e^{-2t} \quad \text{●}$$

$$y_p = -\frac{1}{8}e^{-2t} \quad \text{○}$$

$$y_p = 8e^{-2t} \quad \text{○}$$

none of the given answers is true ○

الإجابة الصحيحة هي: $y_p = \frac{1}{8}e^{-2t}$

سؤال 8

صحيح

درجة 1.0 من 1.0

علم السؤال

If $y_p = u_1(t) \cos(5t) + u_2(t) \sin(5t)$ is a particular solution of the differential equation $u_1(t) =$ then $y'' + 25y = \sec(5t) \tan(5t)$,

☐ $\frac{1}{25} \ln |\cos(5t)|$

☐ none of the given answers is true

☐ $-\frac{1}{5}t - \frac{1}{25} \tan(5t)$

☒ $\frac{1}{5}t - \frac{1}{25} \tan(5t)$

☐ $-\frac{1}{25} \ln |\cos(5t)|$

الإجابة الصحيحة هي: $\frac{1}{5}t - \frac{1}{25} \tan(5t)$

سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

$y'' + 2y' + y = 2e^t$. Find a particular solution of the differential equation

☒ $y_p = \frac{1}{2}e^t$

☐ $y_p = 2e^t$

☐ none of the given answers is true

☐ $y_p = -\frac{1}{2}e^t$

☐ $y_p = -2e^t$

الإجابة الصحيحة هي: $y_p = \frac{1}{2}e^t$

سؤال 9

خطأ

درجة 0.0 من 1.0

علم السؤال

Use the method of reduction of order to find the general of the differential equation

$$(t^2 - 1)y'' - 2ty' + 2y = 24t(t^2 - 1)^2$$

where $y_1(t) = t$ is a solution of

$$(t^2 - 1)y'' - 2ty' + 2y = 0.$$

☐ $y = c_1t + c_2(t^2 + 1) + 2t^5 - 4t^3$

☐ $y = c_1t + c_2(t^2 + 1) + 2t^5 + 4t^3$

☐ $y = c_1t + c_2(t^2 - 1) + 2t^5 + 4t^3$

☒ $y = c_1t + c_2(t^2 - 1) + 2t^5 - 4t^3$

☐ none of the given answers is true

الإجابة الصحيحة هي: $y = c_1t + c_2(t^2 + 1) + 2t^5 - 4t^3$

If $y_p = u_1(t) \cos(5t) + u_2(t) \sin(5t)$ is a particular solution of the differential equation $y'' + 25y = \csc(5t)$,
 $u_1(t)$ is then $y'' + 25y = \csc(5t)$,

none of the given answers is true ☐

$-\frac{1}{25} \ln |\sin(5t)|$ ☒

$\frac{1}{25} \ln |\sin(5t)|$ ☐

$\frac{1}{5}t$ ☐

$-\frac{1}{5}t$ ☐

✗

سؤال 8

خطأ

درجة 0.0 من 1.0

علم السؤال

الإجابة الصحيحة هي: $-\frac{1}{5}t$

$y'' - 3y' + 2y = t - 4 \cos(t)$. Find a particular solution of the differential equation

$y_p = \frac{3}{4}t + \frac{1}{2} - \frac{2}{5} \cos(t) + \frac{6}{5} \sin(t)$ ☐

$y_p = \frac{3}{4}t + \frac{1}{2} - \frac{6}{5} \cos(t) + \frac{2}{5} \sin(t)$ ☐

$y_p = \frac{1}{2}t + \frac{3}{4} - \frac{6}{5} \cos(t) + \frac{2}{5} \sin(t)$ ☐

$y_p = \frac{1}{2}t + \frac{3}{4} - \frac{2}{5} \cos(t) + \frac{6}{5} \sin(t)$ ☒

none of the given answers is true ☐

✓

سؤال 3

صحيح

درجة 1.0 من 1.0

علم السؤال

الإجابة الصحيحة هي: $y_p = \frac{1}{2}t + \frac{3}{4} - \frac{2}{5} \cos(t) + \frac{6}{5} \sin(t)$

$y'' + 25y = 2 \sec(5t) \tan(5t)$. Find the general solution of the differential equation

$y = c_1 \cos(5t) + c_2 \sin(5t) - \frac{2}{5}t \cos(5t) + \frac{2}{25} \sin(5t) \ln |\cos(5t)|$ ☐

none of the given answers is true ☐

$y = c_1 \cos(5t) + c_2 \sin(5t) - \frac{2}{5}t \sin(5t) - \frac{2}{25} \cos(5t) \ln |\sin(5t)|$ ☐

$y = c_1 \cos(5t) + c_2 \sin(5t) + \frac{2}{5}t \cos(5t) - \frac{2}{25} \sin(5t) \ln |\cos(5t)|$ ☐

$y = c_1 \cos(5t) + c_2 \sin(5t) + \frac{2}{5}t \sin(5t) + \frac{2}{25} \cos(5t) \ln |\sin(5t)|$ ☒

✗

سؤال 7

خطأ

درجة 0.0 من 1.0

علم السؤال

الإجابة الصحيحة هي: $y = c_1 \cos(5t) + c_2 \sin(5t) + \frac{2}{5}t \cos(5t) - \frac{2}{25} \sin(5t) \ln |\cos(5t)|$

Find a suitable form for particular solution of the differential equation

$$y'' - 2y' + 5y = e^{-t}(t + 5) + e^{-t} \cos(t).$$

✗

none of the given answers is true ☐

$$y_p = e^{-t}(A_1 t + A_0) + e^{-t} [B_0 \cos(t) + C_0 \sin(t)] ☐$$

$$y_p = te^{-t}(A_1 t + A_0) + te^{-t} [B_0 \cos(t) + C_0 \sin(t)] ☐$$

$$y_p = e^{-t}(A_1 t + A_0) + te^{-t} [B_0 \cos(t) + C_0 \sin(t)] ☒$$

$$y_p = te^{-t}(A_1 t + A_0) + e^{-t} [B_0 \cos(t) + C_0 \sin(t)] ☐$$

سؤال 5

خطأ

درجة 0.0 من 1.0

علم السؤال

الإجابة الصحيحة هي: $y_p = e^{-t}(A_1 t + A_0) + e^{-t} [B_0 \cos(t) + C_0 \sin(t)]$

$y'' - 16y = e^{4t}(t^2 + t)$. Find a suitable form for particular solution of the differential equation

✓

$$y_p = t^2 e^{4t}(A_2 t^2 + A_1 t + A_0) ☐$$

$$y_p = e^{4t}(A_2 t^2 + A_1 t + A_0) ☐$$

none of the given answers is true ☐

$$y_p = A_0 t^3 e^{4t} ☐$$

$$y_p = te^{4t}(A_2 t^2 + A_1 t + A_0) ☒$$

سؤال 4

صحيح

درجة 1.0 من 1.0

علم السؤال

الإجابة الصحيحة هي: $y_p = te^{4t}(A_2 t^2 + A_1 t + A_0)$

Let u_1 and u_2 be two solutions of the nonhomogeneous equation $L[y] = y'' + y' + y = \cos(t)$. Then

$y = u_1 - u_2$ is a solution of

✓

$$L[y] = y'' + y' + y = 2 \cos(t) ☐$$

None of the given equations ☐

$$L[y] = y'' + y' + y = \cos(t) ☐$$

$$L[y] = y'' + y' + y = 0 ☒$$

$$L[y] = y'' + y' + y = -\cos(t) ☐$$

سؤال 1

صحيح

درجة 1.0 من 1.0

علم السؤال

الإجابة الصحيحة هي: $L[y] = y'' + y' + y = 0$

$y'' + 6y' + 8y = 4te^{-2t}$. Find the general solution of the differential equation

✗

$$y = c_1 e^{-2t} + c_2 e^{-4t} - te^{-2t} - t^2 e^{-2t} ☒$$

$$y = c_1 e^{-2t} + c_2 e^{-4t} + te^{-2t} + t^2 e^{-2t} ☐$$

none of the given answers is true ☐

$$y = c_1 e^{-2t} + c_2 e^{-4t} + te^{-2t} - t^2 e^{-2t} ☐$$

$$y = c_1 e^{-2t} + c_2 e^{-4t} - te^{-2t} + t^2 e^{-2t} ☐$$

سؤال 6

خطأ

درجة 0.0 من 1.0

علم السؤال

الإجابة الصحيحة هي: $y = c_1 e^{-2t} + c_2 e^{-4t} - te^{-2t} + t^2 e^{-2t}$

سؤال 9

صحيح

درجة 1.0 من 1.0

علم السؤال

Use the method of reduction of order to find the general of the differential equation

$$(t^2 - 4)y'' - 2ty' + 2y = 12(t + 1)(t^2 - 4)^2$$

where $y_1(t) = t$ is a solution of

$$(t^2 - 4)y'' - 2ty' + 2y = 0.$$

$y = c_1t + c_2(t^2 - 4) + t^5 + 2t^4 - 8t^3 - 24t^2$ ☐

$y = c_1t + c_2(t^2 + 4) + t^5 + 2t^4 + 8t^3 + 24t^2$ ☐

none of the given answers is true ☐

$y = c_1t + c_2(t^2 - 4) + t^5 + 2t^4 + 8t^3 + 24t^2$ ☐

✓ $y = c_1t + c_2(t^2 + 4) + t^5 + 2t^4 - 8t^3 - 24t^2$ ☒

الإجابة الصحيحة هي:

$$y = c_1t + c_2(t^2 + 4) + t^5 + 2t^4 - 8t^3 - 24t^2$$

سؤال 3

صحيح

درجة 1.0 من 1.0

٣ علم السؤال

Find a particular solution of the differential

 $y'' - 3y' + 2y = t - 4 \sin(t)$. equationnone of the given answers is true ☐

$$y_p = \frac{3}{4}t + \frac{1}{2} - \frac{6}{5}\cos(t) - \frac{2}{5}\sin(t) \quad \text{○}$$



$$y_p = \frac{1}{2}t + \frac{3}{4} - \frac{6}{5}\cos(t) - \frac{2}{5}\sin(t) \quad \text{Ⓢ}$$

$$y_p = \frac{1}{2}t + \frac{3}{4} - \frac{2}{5}\cos(t) - \frac{6}{5}\sin(t) \quad \text{○}$$

$$y_p = \frac{3}{4}t + \frac{1}{2} - \frac{2}{5}\cos(t) - \frac{6}{5}\sin(t) \quad \text{○}$$

الإجابة الصحيحة هي:

$$y_p = \frac{1}{2}t + \frac{3}{4} - \frac{6}{5}\cos(t) - \frac{2}{5}\sin(t)$$

سؤال 4

صحيح

درجة 1.0 من 1.0

٣ علم السؤال

Find a suitable form for particular solution

 $y'' + 9y = e^{-3t}t^2$. of the differential equation

$$y_p = e^{-3t}(A_2t^2 + A_1t + A_0) \quad \text{Ⓢ}$$

none of the given answers is true ☐

$$y_p = te^{-3t}(A_2t^2 + A_1t + A_0) \quad \text{○}$$

$$y_p = A_0t^3e^{-3t} \quad \text{○}$$

$$y_p = t^2e^{-3t}(A_2t^2 + A_1t + A_0) \quad \text{○}$$

الإجابة الصحيحة هي:

$$y_p = e^{-3t}(A_2t^2 + A_1t + A_0)$$

سؤال 5

صحيح

درجة 1.0 من 1.0

٣ علم السؤال

Find a suitable form for particular solution

of the differential equation

$$y'' + 2y' + 5y = e^{-t}(4t + 3) + e^{-t}[\cos(t) - 2\sin(t)].$$



$$y_p = e^{-t}(A_1t + A_0) + e^{-t}[B_0\cos(t) + C_0\sin(t)] \quad \text{Ⓢ}$$

$$y_p = te^{-t}(A_1t + A_0) + e^{-t}[B_0\cos(t) + C_0\sin(t)] \quad \text{○}$$

$$y_p = e^{-t}(A_1t + A_0) + te^{-t}[B_0\cos(t) + C_0\sin(t)] \quad \text{○}$$

none of the given answers is true ☐

$$y_p = te^{-t}(A_1t + A_0) + te^{-t}[B_0\cos(t) + C_0\sin(t)] \quad \text{○}$$

الإجابة الصحيحة هي:

$$y_p = e^{-t}(A_1t + A_0) + e^{-t}[B_0\cos(t) + C_0\sin(t)]$$

سؤال 6

صحيح

درجة 1.0 من 1.0

٣ علم السؤال

Find the general solution of the differential

$$y'' - y = 12te^{-t}. \text{ equation}$$



$$y = c_1 e^t + c_2 e^{-t} - 3te^{-t} - 3t^2 e^{-t} \quad \textcircled{a}$$

none of the given answers is true ☐

$$y = c_1 e^t + c_2 e^{-t} + 3te^{-t} - 3t^2 e^{-t} \quad \textcircled{b}$$

$$y = c_1 e^t + c_2 e^{-t} - 3te^{-t} + 3t^2 e^{-t} \quad \textcircled{c}$$

$$y = c_1 e^t + c_2 e^{-t} + 3te^{-t} + 3t^2 e^{-t} \quad \textcircled{d}$$

الإجابة الصحيحة هي:

$$y = c_1 e^t + c_2 e^{-t} - 3te^{-t} - 3t^2 e^{-t}$$

سؤال 7

صحيح

درجة 1.0 من 1.0

٣ علم السؤال

Find the general solution of the differential

$$y'' + 4y = 4 \sec^3(2t). \text{ equation}$$



none of the given answers is true ☐

$$y = c_1 \cos(2t) + c_2 \sin(2t) + \frac{1}{2} \sec(2t) \quad \textcircled{a}$$

$$y = c_1 \cos(2t) + c_2 \sin(2t) - \frac{1}{4} \sec(2t) \quad \textcircled{b}$$

$$y = c_1 \cos(2t) + c_2 \sin(2t) + \frac{1}{4} \sec(2t) \quad \textcircled{c}$$

$$y = c_1 \cos(2t) + c_2 \sin(2t) - \frac{1}{2} \sec(2t) \quad \textcircled{d}$$

الإجابة الصحيحة هي:

$$y = c_1 \cos(2t) + c_2 \sin(2t) + \frac{1}{2} \sec(2t)$$

سؤال 8

خطأ

درجة 0.0 من 1.0

٣ علم السؤال

If $y_p = u_1(t)e^t + u_2(t)e^{-t}$ is a particular solution of the differential equation

$$u_1(t) = \text{then } y'' - y = \frac{2e^t}{e^{2t} + 2},$$

$$-\frac{1}{4} \ln |2e^{-2t} + 1| \quad \textcircled{a}$$

$$\frac{1}{4} \ln |2e^{-2t} + 1| \quad \textcircled{b}$$

$$\frac{1}{2} \ln |e^{2t} + 2| \quad \textcircled{c}$$

$$-\frac{1}{2} \ln |e^{2t} + 2| \quad \textcircled{d}$$



none of the given answers is true ☐

الإجابة الصحيحة هي: $-\frac{1}{4} \ln |2e^{-2t} + 1|$

سؤال 1

صحيح

درجة 1.0 من 1.0

علم السؤال

Let u_1 and u_2 be two solutions of the nonhomogeneous equation

$$L[y] = y'' + \sin(t) y' + y = \tan(t). \text{ Then}$$

$y = u_1 - 2u_2$ is a solution of

$L[y] = y'' + \sin(t) y' + y = 0$ ☐

None of the given equations ☐



$L[y] = y'' + \sin(t) y' + y = -\tan(t)$ ☒

$L[y] = y'' + \sin(t) y' + y = \tan(t)$ ☐

$L[y] = y'' + \sin(t) y' + y = 2\tan(t)$ ☐

الإجابة الصحيحة هي:

$$L[y] = y'' + \sin(t) y' + y = -\tan(t)$$

سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

Find a particular solution of the differential

$$y'' + 2y' + y = -2e^{-2t}. \text{ equation}$$



$y_p = -2e^{-2t}$ ☒

$y_p = -\frac{1}{2}e^{-2t}$ ☐

$y_p = \frac{1}{2}e^{-2t}$ ☐

none of the given answers is true ☐

$y_p = 2e^{-2t}$ ☐

الإجابة الصحيحة هي: $y_p = -2e^{-2t}$

Find the general solution of the differential equation

$$y'' + 16y = \sec(4t) \tan(4t).$$

✓ $y = c_1 \cos(4t) + c_2 \sin(4t) + \frac{1}{4}t \cos(4t) - \frac{1}{16} \sin(4t) \ln |\cos(4t)|$ ☒

$y = c_1 \cos(4t) + c_2 \sin(4t) + \frac{1}{4}t \sin(4t) + \frac{1}{16} \cos(4t) \ln |\sin(4t)|$ ☐

none of the given answers is true ☐

$y = c_1 \cos(4t) + c_2 \sin(4t) - \frac{1}{4}t \sin(4t) - \frac{1}{16} \cos(4t) \ln |\sin(4t)|$ ☐

$y = c_1 \cos(4t) + c_2 \sin(4t) - \frac{1}{4}t \cos(4t) + \frac{1}{16} \sin(4t) \ln |\cos(4t)|$ ☐

الإجابة الصحيحة هي:

$$y = c_1 \cos(4t) + c_2 \sin(4t) + \frac{1}{4}t \cos(4t) - \frac{1}{16} \sin(4t) \ln |\cos(4t)|$$

If $y_p = u_1(t)e^t + u_2(t)e^{-t}$ is a particular solution of the differential equation

$$u_2(t) = \text{then } y'' - y = \frac{2e^t}{e^{2t} - 1},$$

none of the given answers is true ☐



$-\frac{1}{2} \ln |e^{2t} - 1|$ ☒

$-\frac{1}{2} \ln |e^{-2t} - 1|$ ☐

$\frac{1}{2} \ln |e^{2t} - 1|$ ☐

$\frac{1}{2} \ln |e^{-2t} - 1|$ ☐

الإجابة الصحيحة هي: $-\frac{1}{2} \ln |e^{2t} - 1|$

سؤال 3

خطأ

درجة 0.0 من 1.0

علم السؤال

Find a particular solution of the differential equation

$$2y'' + 3y' + y = t + 1 - 2\sin(2t).$$

$$y_p = t + 2 + \frac{14}{85}\cos(2t) + \frac{12}{85}\sin(2t) \quad \text{○}$$

$$y_p = t - 2 - \frac{12}{85}\cos(2t) - \frac{14}{85}\sin(2t) \quad \text{○}$$

✗

$$y_p = t + 2 - \frac{14}{85}\cos(2t) - \frac{12}{85}\sin(2t) \quad \text{●}$$

$$y_p = t - 2 + \frac{12}{85}\cos(2t) + \frac{14}{85}\sin(2t) \quad \text{○}$$

none of the given answers is true ○

الإجابة الصحيحة هي: $y_p = t - 2 + \frac{12}{85}\cos(2t) + \frac{14}{85}\sin(2t)$

سؤال 4

صحيح

درجة 1.0 من 1.0

علم السؤال

Find a suitable form for particular solution of the

$$y'' + 9y = e^{3t}(t + 1). \text{ differential equation}$$

✓

$$y_p = e^{3t}(A_1t + A_0) \quad \text{●}$$

$$y_p = t^2e^{3t}(A_1t + A_0) \quad \text{○}$$

none of the given answers is true ○

$$y_p = te^{3t}(A_1t + A_0) \quad \text{○}$$

$$y_p = A_0t^2e^{3t} \quad \text{○}$$

الإجابة الصحيحة هي: $y_p = e^{3t}(A_1t + A_0)$

Use the method of reduction of order to find the general
of the differential equation

$$(t^2 - 3)y'' - 2ty' + 2y = 6(t^2 - 3)^2$$

where $y_1(t) = t$ is a solution of

$$(t^2 - 3)y'' - 2ty' + 2y = 0.$$

$y = c_1t + c_2(t^2 + 3) + t^4 - 9t^2$ ☐

none of the given answers is true ☐

$y = c_1t + c_2(t^2 + 3) + t^4 + 9t^2$ ☐

✖

$y = c_1t + c_2(t^2 - 3) + t^4 - 9t^2$ ☒

$y = c_1t + c_2(t^2 - 3) + t^4 + 9t^2$ ☐

الإجابة الصحيحة هي: $y = c_1t + c_2(t^2 + 3) + t^4 - 9t^2$

Find a suitable form for particular solution of the differential equation

$$y'' - 2y' + y = t^2 e^t - (3t - 1) \cos(2t).$$

$$y_p = t e^t (A_2 t^2 + A_1 t + A_0) + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)] \quad \textcircled{\hspace{0.5cm}}$$

none of the given answers is true ☐

$$y_p = e^t (A_2 t^2 + A_1 t + A_0) + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)] \quad \textcircled{\hspace{0.5cm}}$$

$$y_p = t e^t (A_2 t^2 + A_1 t + A_0) + (B_1 t + B_0) \cos(2t) \quad \textcircled{\hspace{0.5cm}}$$

$$y_p = t^2 e^t (A_2 t^2 + A_1 t + A_0) + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)] \quad \textcircled{\bullet}$$

الإجابة الصحيحة هي:

$$y_p = t^2 e^t (A_2 t^2 + A_1 t + A_0) + [(B_1 t + B_0) \cos(2t) + (C_1 t + C_0) \sin(2t)]$$

Find the general solution of the differential equation

$$y'' - 9y' + 20y = -4te^{4t}.$$

none of the given answers is true ☐

$$y = c_1 e^{4t} + c_2 e^{5t} - 4te^{4t} + 2t^2 e^{4t} \quad \textcircled{\hspace{0.5cm}}$$

✗

$$y = c_1 e^{4t} + c_2 e^{5t} + 4te^{4t} - 2t^2 e^{4t} \quad \textcircled{\bullet}$$

$$y = c_1 e^{4t} + c_2 e^{5t} + 4te^{4t} + 2t^2 e^{4t} \quad \textcircled{\hspace{0.5cm}}$$

$$y = c_1 e^{4t} + c_2 e^{5t} - 4te^{4t} - 2t^2 e^{4t} \quad \textcircled{\hspace{0.5cm}}$$

$$y = c_1 e^{4t} + c_2 e^{5t} + 4te^{4t} + 2t^2 e^{4t} \text{ :الإجابة الصحيحة هي}$$

سؤال 1

خطأ

درجة 0.0 من 1.0

علم السؤال

Let u_1 and u_2 be two solutions of the equation $y'' + y' + y^2 = \sin(t)$, Then $y = u_1 + u_2$ is a solution of

$$y'' + y' + y^2 = 0 \quad \text{○}$$

$$y'' + y' + y^2 = \sin(t) \quad \text{○}$$

✗

$$y'' + y' + y^2 = 2 \sin(t) \quad \text{●}$$

None of the given equations ☐

$$y'' + y' + y^2 = -\sin(t) \quad \text{○}$$

الإجابة الصحيحة هي: None of the given equations

سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

Find a particular solution of the differential equation

$$y'' - 4y' + 4y = 4e^{3t}.$$

none of the given answers is true ☐

✓

$$y_p = 4e^{3t} \quad \text{●}$$

$$y_p = -4e^{3t} \quad \text{○}$$

$$y_p = -\frac{1}{4}e^{3t} \quad \text{○}$$

$$y_p = \frac{1}{4}e^{3t} \quad \text{○}$$

الإجابة الصحيحة هي: $y_p = 4e^{3t}$

Find a particular solution of the differential equation

$$y'' - 2y' + y = 3e^{-t}.$$



$$y_p = \frac{3}{4}e^{-t} \quad \text{radio button checked}$$

$$y_p = -\frac{4}{3}e^{-t} \quad \text{radio button}$$

$$y_p = \frac{4}{3}e^{-t} \quad \text{radio button}$$

$$y_p = -\frac{3}{4}e^{-t} \quad \text{radio button}$$

none of the given answers is true ☐

الإجابة الصحيحة هي: $y_p = \frac{3}{4}e^{-t}$

سؤال 4

خطأ

درجة 0.0 من 1.0

علم السؤال

Find a suitable form for particular solution of the differential

equation $y'' + 25y = e^{5t}(t^2 + t)$.

none of the given answers is ☐
true

$y_p = t^2 e^{5t} (A_2 t^2 + A_1 t + A_0)$ ☐

$\times y_p = t e^{5t} (A_2 t^2 + A_1 t + A_0)$ ☒

$y_p = A_0 t^3 e^{5t}$ ☐

$y_p = e^{5t} (A_2 t^2 + A_1 t + A_0)$ ☐

الإجابة الصحيحة هي:

$$y_p = e^{5t} (A_2 t^2 + A_1 t + A_0)$$

Use the method of reduction of order to find the general of the differential equation

$$(t^2 + 5)y'' - 2ty' + 2y = 6(2t + 1)(t^2 + 5)^2$$

where $y_1(t) = t$ is a solution of the homogeneous equation

$$(t^2 + 5)y'' - 2ty' + 2y = 0.$$

$= c_1t + c_2(t^2 - 5) + t^5 + t^4 - 10t^3 - 15t^2$ ☐

$= c_1t + c_2(t^2 - 5) + t^5 + t^4 + 10t^3 + 15t^2$ ☒

$= c_1t + c_2(t^2 + 5) + t^5 + t^4 + 10t^3 + 15t^2$ ☐

$= c_1t + c_2(t^2 + 5) + t^5 + t^4 - 10t^3 - 15t^2$ ☐

none of the given answers is true ☐

جابه الصحيحه هي:

$$y = c_1t + c_2(t^2 - 5) + t^5 + t^4 + 10t^3 + 15t^2$$

سؤال 7

سحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation
 $y'' + 25y = 4 \csc^3(5t)$.

$y = c_1 \cos(5t) + c_2 \sin(5t) + \frac{1}{25} \csc(5t)$ ☐

✓ $y = c_1 \cos(5t) + c_2 \sin(5t) + \frac{2}{25} \csc(5t)$ ☒

$y = c_1 \cos(5t) + c_2 \sin(5t) - \frac{2}{25} \csc(5t)$ ☐

$y = c_1 \cos(5t) + c_2 \sin(5t) - \frac{1}{25} \csc(5t)$ ☐

none of the given answers is true ☐

$y'' - 4y = 32te^{-2t}$. Find the general solution of the differential equation

$y = c_1 e^{2t} + c_2 e^{-2t} - 2te^{-2t} + 4t^2 e^{-2t}$ ☐

✓ $y = c_1 e^{2t} + c_2 e^{-2t} - 2te^{-2t} - 4t^2 e^{-2t}$ ☒

none of the given answers is true ☐

$y = c_1 e^{2t} + c_2 e^{-2t} + 2te^{-2t} - 4t^2 e^{-2t}$ ☐

$y = c_1 e^{2t} + c_2 e^{-2t} + 2te^{-2t} + 4t^2 e^{-2t}$ ☐

Find a particular solution of the differential equation

$$2y'' + 3y' + y = t - 3\sin(2t).$$

✓ $y_p = t - 3 + \frac{18}{85}\cos(2t) + \frac{21}{85}\sin(2t)$ ☒

$y_p = t - 3 - \frac{18}{85}\cos(2t) - \frac{21}{85}\sin(2t)$ ☐

none of the given answers is true ☐

$y_p = t + 3 + \frac{21}{85}\cos(2t) + \frac{18}{85}\sin(2t)$ ☐

$y_p = t + 3 - \frac{21}{85}\cos(2t) - \frac{18}{85}\sin(2t)$ ☐

الإجابة الصحيحة هي:

$$y_p = t - 3 + \frac{18}{85}\cos(2t) + \frac{21}{85}\sin(2t)$$

Let u_1 and u_2 be two solutions of the nonhomogeneous equation

$$L[y] = y'' + y' + y = \sin(t).$$

Then $y = u_1 - 2u_2$ is a solution of

$L[y] = y'' + y' + y = 0$ ☐

$L[y] = y'' + y' + y = 2\sin(t)$ ☐

None of the given equations ☐

$L[y] = y'' + y' + y = \sin(t)$ ☐

✓ $L[y] = y'' + y' + y = -\sin(t)$ ☒

الإجابة الصحيحة هي:

$$L[y] = y'' + y' + y = -\sin(t)$$

سؤال 8

خطأ

درجة 0.0 من 1.0

علم السؤال

If $y_p = u_1(t)e^{3t} + u_2(t)e^{-3t}$ is a particular solution of the differential equation

$$\text{then } y'' - 9y = \frac{e^{3t}}{e^{6t} + 1},$$
$$u_1(t) =$$

none of the given answers is ☐
true

☐ $-\frac{1}{36}\ln(e^{-6t} + 1)$

☒ $\frac{1}{36}\ln(e^{6t} + 1)$

☐ $\frac{1}{36}\ln(e^{-6t} + 1)$

☐ $-\frac{1}{36}\ln(e^{6t} + 1)$

الإجابة الصحيحة هي:

$\frac{1}{36}\ln(e^{-6t} + 1)$