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RINGDEPARTMENT22

Use the method of reduction of order to find a second solution of the differential equation

$$25t^2 y'' + 65ty' + 16y = 0, \quad t > 0,$$

where $y_1(t) = t^{-4/5}$ is a solution of the given equation

$$y_2 = t^{4/5} \ln(t) \quad \text{○}$$

$$y_2 = \ln(t) \quad \text{○}$$



$$y_2 = t^{-4/5} \ln(t) \quad \text{●}$$

$$y_2 = t \ln(t) \quad \text{○}$$

none of the given answers is true ○

الإجابة الصحيحة هي:

$$y_2 = t^{-4/5} \ln(t)$$

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

$$(t - 3)y'' + (t - 4)y' - y = 0,$$

where $y_1(t) = e^{-t}$ is a solution of the given equation

$$y = c_1 e^{-t} + c_2(t + 4) \quad \text{○}$$

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

none of the given answers is true ○

✓ $y = c_1 e^{-t} + c_2(t - 4) \quad \text{●}$

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

الإجابة الصحيحة هي:

$$y = c_1 e^{-t} + c_2(t - 4)$$

سؤال 7

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the solution of the initial value problem

$$-6y' + 9y = 0, \quad y(0) = 1, \quad y'(0) = -2.$$

$$y = e^{-3t} \quad \text{○}$$



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

none of the given answers is true ○

$$y = te^{-3t} \quad \text{○}$$

$$y = e^{-3t} - te^{-3t} \quad \text{○}$$

الإجابة الصحيحة هي:

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

سؤال 6

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$y'' + 4y' + 4y = 0$$

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



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

none of the given answers is true ○

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

$$y = (c_1 + c_2 t) e^{2t} \quad \text{○}$$

الإجابة الصحيحة هي:

$$y = (c_1 + c_2 t) e^{-2t}$$

سؤال 5

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the solution of the initial
value problem

$$y'' + 4y = 0, \quad y(0) = 1, \quad y'(0) = 10.$$

none of the given answers is ☐
true

$y = \cos(2t) - 5 \sin(2t)$ ☐

✓ $y = \cos(2t) + 5 \sin(2t)$ ☒

$y = -\cos(2t) - 5 \sin(2t)$ ☐

$y = -\cos(2t) + 5 \sin(2t)$ ☐

الإجابة الصحيحة هي:

$$y = \cos(2t) + 5 \sin(2t)$$

سؤال 4

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the solution of the initial
value problem

$$y'' - 16y = 0, \quad y(0) = -3, \quad y'(0) = 4.$$

none of the given answers is ☐
true



$y = -e^{4t} - 2e^{-4t}$ ☒

$y = -2e^{4t} - e^{-4t}$ ☐

$y = -3e^{4t}$ ☐

$y = -3e^{-4t}$ ☐

الإجابة الصحيحة هي:

$$y = -e^{4t} - 2e^{-4t}$$

سؤال 3

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$y'' + 8y' + 32y = 0$$

$y = e^{-2t} [c_1 \cos(4t) + c_2 \sin(4t)]$ ☐

$y = e^{2t} [c_1 \cos(4t) + c_2 \sin(4t)]$ ☐

$y = e^{4t} [c_1 \cos(4t) + c_2 \sin(4t)]$ ☐

✓ $y = e^{-4t} [c_1 \cos(4t) + c_2 \sin(4t)]$ ☒

none of the given answers is ☐

true

الإجابة الصحيحة هي:

$$y = e^{-4t} [c_1 \cos(4t) + c_2 \sin(4t)]$$

سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$2y'' + 3y' - 2y = 0$$

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

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



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

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

none of the given answers is true ○

الإجابة الصحيحة هي:

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

سؤال 1

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the characteristic equation
for the differential equation

$$. \quad 2y'' + 3y' + 5y = 0$$

None of the given answers is ☐
true



$2r^2 + 3r + 5 = 0$ ☒

$r + 5 = 0$ ☐

$2r^2 + 5 = 0$ ☐

$2r^2 + 3r = 0$ ☐

الإجابة الصحيحة هي:

$$2r^2 + 3r + 5 = 0$$

سؤال 9

صحيح

درجة 1.0 من 1.0

علم السؤال

Use the method of reduction of order to find a second solution of the differential equation

$$t^2 y'' + 3ty' + y = 0, \quad t > 0,$$

.where $y_1(t) = t^{-1}$ is a solution of the given equation

$$y_2 = t^{-1} \ln(t) \quad \textcircled{\bullet}$$

$$y_2 = t^{-2} \ln(t) \quad \textcircled{}$$

none of the given answers is true ☐

$$y_2 = t \ln(t) \quad \textcircled{}$$

$$y_2 = \ln(t) \quad \textcircled{}$$

الإجابة الصحيحة هي: $y_2 = t^{-1} \ln(t)$

سؤال 8

صحيح

درجة 1.0 من 1.0

علم السؤال

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

$$(t+2)y'' + (t+1)y' - y = 0,$$

.where $y_1(t) = e^{-t}$ is a solution of the given equation

$$y = c_1 e^{-t} + c_2(t+1) \quad \textcircled{\bullet}$$

$$y = c_1 e^{-t} + c_2(t-1) \quad \textcircled{}$$

$$y = c_1 e^{-t} + c_2(t-2) \quad \textcircled{}$$

none of the given answers is true ☐

$$y = c_1 e^{-t} + c_2(t+2) \quad \textcircled{}$$

الإجابة الصحيحة هي: $y = c_1 e^{-t} + c_2(t+1)$

سؤال 7

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the solution of the initial value problem

$$y'' - 6y' + 9y = 0, \quad y(0) = -1, \quad y'(0) = -1.$$



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

none of the given answers is true ☐

$$y = -e^{3t} - 2te^{3t} \quad \textcircled{}$$

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

$$y = -2e^{3t} - te^{3t} \quad \textcircled{}$$

الإجابة الصحيحة هي: $y = -e^{3t} + 2te^{3t}$

سؤال 6

صحيح

درجة 1.0 من 1.0

علم السؤال

. $9y'' - 12y' + 4y = 0$ Find the general solution of the differential equation

$y = (c_1 + c_2 t)e^{-2t/3}$ ☐

$y = c_1 e^{2t/3} + c_2 e^{-2t/3}$ ☐

$y = (c_1 + c_2 t)e^{2t/3}$ ☒

none of the given answers is true ☐

$y = (c_1 + c_2 t)e^{3t/2}$ ☐



الإجابة الصحيحة هي: $y = (c_1 + c_2 t)e^{2t/3}$

سؤال 5

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the solution of the initial value problem

$y'' + 4y = 0, \quad y(0) = -1, \quad y'(0) = -4.$

none of the given answers is true ☐

$y = -\cos(2t) + 2\sin(2t)$ ☐

$y = -\cos(2t) - 2\sin(2t)$ ☒

$y = \cos(2t) - 2\sin(2t)$ ☐

$y = \cos(2t) + 2\sin(2t)$ ☐



الإجابة الصحيحة هي: $y = -\cos(2t) - 2\sin(2t)$

سؤال 4

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the solution of the initial value problem

$y'' - y = 0, \quad y(0) = 0, \quad y'(0) = -2.$

$y = -2e^t + 2e^{-t}$ ☐

none of the given answers is true ☐

$y = 2e^t - 2e^{-t}$ ☐

$y = -e^t + e^{-t}$ ☒

$y = e^t - e^{-t}$ ☐



الإجابة الصحيحة هي: $y = -e^t + e^{-t}$

سؤال 3

صحيح

درجة 1.0 من 1.0

علم السؤال

. $y'' - 6y' + 18y = 0$ Find the general solution of the differential equation

$y = e^{-2t}[c_1 \cos(3t) + c_2 \sin(3t)]$ ☐

$y = e^{3t}[c_1 \cos(3t) + c_2 \sin(3t)]$ ☒

none of the given answers is true ☐

$y = e^{2t}[c_1 \cos(3t) + c_2 \sin(3t)]$ ☐

$y = e^{-3t}[c_1 \cos(3t) + c_2 \sin(3t)]$ ☐



الإجابة الصحيحة هي: $y = e^{3t}[c_1 \cos(3t) + c_2 \sin(3t)]$

سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

. $y'' - 2y' = 0$ Find the general solution of the differential equation

$y = c_1 e^{2t} + c_2 e^{-2t}$ ☐

$y = c_1 t + c_2 e^{2t}$ ☐

none of the given answers is true ☐

$y = c_1 + c_2 e^{2t}$ ☒

$y = c_1 + c_2 e^{-2t}$ ☐

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

سؤال 1

صحيح

درجة 1.0 من 1.0

علم السؤال

. $y'' + 2y' - y = 0$ Find the characteristic equation for the differential equation

$r^2 - 1 = 0$ ☐

$r - 2 = 0$ ☐

None of the given answers is true ☐

$r^2 + 2r - 1 = 0$ ☒

$r^2 + 2r = 0$ ☐

الإجابة الصحيحة هي: $r^2 + 2r - 1 = 0$



سؤال 4

خطأ

درجة 0.0 من 1.0

علم السؤال

Find the solution of the initial
value problem

$$y'' - 16y = 0, \quad y(0) = -1, \quad y'(0) = -12.$$

$$y = -3e^{4t} + 2e^{-4t} \quad \text{○}$$

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

$$y = 2e^{4t} - 3e^{-4t} \quad \text{○}$$

$$\times \quad y = e^{4t} - 2e^{-4t} \quad \text{●}$$

none of the given answers is
true ○

الإجابة الصحيحة هي:

$$y = -2e^{4t} + e^{-4t}$$

سؤال 5



الإجابة الصحيحة هي:

$$y = -2e^{4t} + e^{-4t}$$

سؤال 5

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the solution of the initial value problem

$$y'' + y = 0, \quad y(0) = 2, \quad y'(0) = 5.$$

✓ ☒ $y = 2 \cos(t) + 5 \sin(t)$

☐ $y = 2 \cos(t) - 5 \sin(t)$

☐ $y = -2 \cos(t) - 5 \sin(t)$

☐ $y = -2 \cos(t) + 5 \sin(t)$

☐ none of the given answers is true



سؤال 7

حيح

نقطة 1.0 من 1.0

علم السؤال

Find the solution of the initial value problem

$$y'' - 6y' + 9y = 0, \quad y(0) = -1, \quad y'(0) = -2.$$

$$y = -e^{3t} \quad \text{○}$$

$$y = -te^{3t} \quad \text{○}$$

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

none of the given answers is true ○

$$y = -e^{3t} - te^{3t} \quad \text{○}$$

الإجابة الصحيحة هي:

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

سؤال 8



سؤال 6

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$25y'' - 30y' + 9y = 0$$

none of the given answers is ☐ true

$$y = (c_1 + c_2t)e^{-3t/5} \quad \text{○}$$

$$y = c_1e^{3t/5} + c_2e^{-3t/5} \quad \text{○}$$

$$y = (c_1 + c_2t)e^{5t/3} \quad \text{○}$$

✓ $y = (c_1 + c_2t)e^{3t/5} \quad \text{●}$

الإجابة الصحيحة هي:

$$y = (c_1 + c_2t)e^{3t/5}$$



١ علم السؤال

Use the method of reduction of order to find a second solution of the differential equation

$$(t+2)^2 y'' + 3(t+2)y' + y = 0, \quad t+2 > 0,$$

where $y_1(t) = (t+2)^{-1}$ is a solution of the given equation

$y_2 = (t+2) \ln(t+2)$ ☐

$y_2 = \ln(t+2)$ ☐

$y_2 = (t+2)^{-2} \ln(t+2)$ ☐

✓ $y_2 = (t+2)^{-1} \ln(t+2)$ ☒

none of the given answers is true ☐

الإجابة الصحيحة هي:

$$y_2 = (t+2)^{-1} \ln(t+2)$$

[إنهاء المراجعة](#)



صحيح

درجة 1.0 من 1.0

علم السؤال

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

$$(2t - 1)y'' + 4(t - 1)y' - 4y = 0,$$

where $y_1(t) = e^{-2t}$ is a solution of the given equation

$y = c_1 e^{-2t} + c_2(t - 2)$ ☐

$y = c_1 e^{-2t} + c_2(t + 1)$ ☐

✓ $y = c_1 e^{-2t} + c_2(t - 1)$ ☒

none of the given answers is true ☐

$y = c_1 e^{-2t} + c_2(t + 2)$ ☐

الإجابة الصحيحة هي:

$$y = c_1 e^{-2t} + c_2(t - 1)$$



سؤال 2

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the general solution of the differential equation

$$2y'' + 3y' + y = 0$$

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

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

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

none of the given answers is true

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

الإجابة الصحيحة هي:

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

سؤال 3



سؤال 3

خطأ

درجة 0.0 من 1.0

علم السؤال

Find the general solution of the
differential equation

$$y'' - 4y' + 8y = 0$$

$y = e^{-2t}[c_1 \cos(2t) + c_2 \sin(2t)]$ ☐

$\times y = e^t[c_1 \cos(2t) + c_2 \sin(2t)]$ ☒

$y = e^{-t}[c_1 \cos(2t) + c_2 \sin(2t)]$ ☐

$y = e^{2t}[c_1 \cos(2t) + c_2 \sin(2t)]$ ☐

none of the given answers is
true ☐

الإجابة الصحيحة هي:

$$y = e^{2t}[c_1 \cos(2t) + c_2 \sin(2t)]$$



سؤال 1

صحيح

درجة 1.0 من 1.0

علم السؤال

Find the characteristic equation
for the differential equation

$$3y'' + y' = 0$$

$$3r^2 + 1 = 0$$
 ☐

None of the given answers is
true

☐

$$3r^2 + r + 1 = 0$$
 ☐

$$r + 1 = 0$$
 ☐



$$3r^2 + r = 0$$
 ☒

الإجابة الصحيحة هي: $3r^2 + r = 0$