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NPTEL

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Courses » Engineering Mathematics - I

Announcements

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Unit 14 - Week 12 :

Register for
Certification exam

Course outline

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Equations

• Lecture 57 :
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• Lecture 58 :
Solution of Higher
Order
Non-Homogeneous
Linear Equations

Assignment 12

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2019-04-24, 23:59 IST

1) Solution of $y'' + 4y = 0; y(0) = 2, y'(0) = 0$ is

1 point

- a. $2 \cos 2x$
b. $2 \sin 2x$
c. $-2 \sin 2x$
d. $-2 \cos 2x$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

2) Particular integral of $(D^4 + D^3 + D^2 - D - 2)y = e^x$ is

1 point

- a. $\frac{1}{4}e^x$
b. $\frac{1}{4}xe^x$
c. $\frac{1}{8}e^x$
d. $\frac{1}{8}xe^x$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

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 Quiz : Assignment
12

 Feedback for
Week 12

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**Assignment
Solution**
General solution of $(D^2 + a^2)y = \sin ax$ is

$$y = C_1 \cos ax + C_2 \sin ax + A(x),$$

where C_1 and C_2 are arbitrary constants and $A(x) = \underline{\hspace{2cm}}$.

- a. $\frac{x}{2a} \cos ax$
 b. $\frac{x}{2a} \sin ax$
 c. $-\frac{x}{2a} \cos ax$
 d. $-\frac{x}{2a} \sin ax$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

4) Particular integral of $(D^2 + 4)y = \sin^2 x$ is

- a. $\frac{1}{8}[1 - x \sin 2x]$
 b. $\frac{1}{8}[1 - \sin 2x]$
 c. $\frac{1}{4}[1 - x \sin 2x]$
 d. $\frac{1}{4}[1 - \sin 2x]$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

5) Particular integral of $(x^2 D^2 - 2)y = x^2 + 1/x$ is

- a. $\frac{1}{3}\left(x^2 + \frac{1}{x}\right)$
 b. $\frac{1}{3}\left(x + \frac{1}{x}\right)$
 c. $\frac{\ln x}{3}\left(x^2 + \frac{1}{x}\right)$
 d. $\frac{\ln x}{3}\left(x + \frac{1}{x}\right)$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:



1 point

0 points

c

6) Particular integral of $(xD + 1)y = 1/x$ is

1 point

- a. $\ln x$
 b. $\frac{\ln x}{x}$
 c. $\frac{\ln x}{x^2}$
 d. $\frac{\ln x}{x^2}$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

7)

1 point

Let $y(x)$ be the solution of the IVP $x^2y'' + xy' + y = x$, $y(1) = y'(1) = 1$.
 the value of $y(e^{\pi/2})$ is

- a. $(1 - e^{\frac{\pi}{2}})/2$
 b. $(1 + e^{\frac{\pi}{2}})/2$
 c. $\frac{1}{2} + \frac{\pi}{4}$
 d. $\frac{1}{2} - \frac{\pi}{4}$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

8) Particular integral of $(x^2D^2 + 7xD + 13)y = \log x$ is

1 point

- a. $\frac{1}{13}(\ln x - 6)$
 b. $\frac{1}{13}\left(\ln x - \frac{6}{13}\right)$
 c. $\frac{1}{169}(\ln x - 6)$
 d. $\frac{1}{169}(3 \ln x - 6)$

- a
 b
 c
 d

No, the answer is incorrect.

Score: 0

Accepted Answers:

b

9)

1 point

The set of linearly independent solutions of the differential equation

$$\frac{d^4y}{dx^4} - \frac{d^2y}{dx^2} = 0,$$

is,

- a. $\{1, x, e^x, e^{-x}\}$
- b. $\{1, x, e^{-x}, xe^{-x}\}$
- c. $\{1, x, e^x, xe^x\}$
- d. $\{1, x, e^x, xe^{-x}\}$

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

a

10) Wronskian of e^x and e^{2x} will be _____.

1 point

- a. e^{2x}
- b. $3e^{2x}$
- c. e^{3x}
- d. $3e^{3x}$

- a
- b
- c
- d

No, the answer is incorrect.

Score: 0

Accepted Answers:

c

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