

# Engineering Mathematics(1)

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State	Finished
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Time taken	19 mins 56 secs
Grade	6.00 out of 6.00 (100%)

Quiz navigation



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**FINISH REVIEW**

## Question 1

Correct  
Mark 1.00 out of 1.00  
Flag question

Consider the functions  $-9$ ,  $3x$  and  $e^x$ .

Write the number that corresponds to the correct answer

The Wronskian of the above functions is

- $3e^{-9x}$
- $-9e^{3x}$
- 0
- $-27e^x$
- $3e^x$

4



According to the Wronskian calculated in the previous part, the functions are

- Linearly Independent
- Linearly Dependent

1



## Question 2

Correct  
Mark 2.00 out of 2.00  
Flag question

Consider the ODE  $x^2 y'' + 10xy' + 18y = 0$ .

Write the number that corresponds to the correct answer

The characteristic equation of the ODE is

- $m^2 + 6m + 18 = 0$
- $m^2 + 11m + 18 = 0$
- $m^2 + 12m + 18 = 0$
- $m^2 + 9m + 18 = 0$
- $m^2 + 10m + 18 = 0$

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The general solution of the ODE is

- $y = c_1 x^{l_2} + c_2 x^{l_2} \ln x$
- $y = c_1 x^{l_1} + c_2 x^{l_2}$
- $y = c_1 x^{l_1} + c_2 x^{l_1} \ln x$
- $y = c_1 \cos(\ln l_1 x) + c_2 \sin(\ln l_2 x)$
- $y = c_1 x^{l_1} \cos(\ln l_2 x) + c_2 x^{l_1} \sin(\ln l_2 x)$

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## Question 3

Correct  
Mark 1.00 out of 1.00  
Flag question

Assume  $\lambda = 2$  is a solution of the characteristic equation of a homogeneous linear ODE, with multiplicity 3 (repeated 3 times). Then the solution(s) induced by  $\lambda$  is (are)

Select one:

- ☐  $e^{2x}$
- ☐  $e^{2x}, xe^{2x}, x^2 e^{2x}, x^3 e^{2x}$
- ☐  $x^2 e^{2x}$
- ☒  $e^{2x}, xe^{2x}, x^2 e^{2x}$



## Question 4

Correct  
Mark 2.00 out of 2.00  
Flag question

Consider the ODE  $y'' + 10y' + 21y = 0$ .

Write the number that corresponds to the correct answer

The characteristic equation of the ODE is

- $\lambda^2 + 6\lambda + 9 = 0$
- $\lambda^2 + 10\lambda + 21 = 0$
- $\lambda^2 + 14\lambda + 49 = 0$
- $\lambda^2 + 11\lambda + 22 = 0$
- $\lambda^2 + 9\lambda + 20 = 0$

2



The general solution of the ODE is

- $y = c_1 e^{2x} + c_2 x e^{2x}$
- $y = c_1 e^{1x} + c_2 x e^{1x}$

3.  $y = c_1 e^{11x} + c_2 e^{12x}$

4.  $y = c_1 \cos(11x) + c_2 \sin(12x)$

5.  $y = c_1 e^{11x} \cos(12x) + c_2 e^{11x} \sin(12x)$

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FINISH REVIEW