

Engineering Mathematics(1)

Started on	Thursday, 8 July 2021, 9:30 AM
State	Finished
Completed on	Thursday, 8 July 2021, 10:00 AM
Time taken	29 mins 57 secs
Grade	5.00 out of 6.00 (83%)

Question 1

Correct
Mark 1.00 out of 1.00
Flag question

The integrating factor that makes the differential equation $(1 + y^2) dx + (x - e^{\tan^{-1}y}) dy = 0$ exact is

Select one:

- ☐ $F = \ln(1 + y^2) \cdot \tan^{-1}y$
- ☒ $F = \frac{e^{\tan^{-1}y}}{1 + y^2}$
- ☐ $F = (1 + y^2)e^{\tan^{-1}y}$
- ☐ $F = \frac{\tan^{-1}y}{\ln(1 + y^2)}$

Question 2

Correct
Mark 1.00 out of 1.00
Flag question

Let $y' = -\ln x^y, y > 0$. If $y(1) = e^2$, then $y(2) =$

1. $y(2) = \frac{e^3}{4}$
2. $y(2) = \frac{e^2}{4}$
3. $y(2) = \frac{e^4}{4}$
4. $y(2) = \frac{e^1}{4}$
5. $y(2) = \frac{e^5}{4}$

Write the number of the choice corresponding to the correct answer

1



Question 3

Correct
Mark 1.00 out of 1.00
Flag question

The differential equation $xy' = 7y' + \ln(xe^y)$, is

Select one:

- ☐ can be transformed to separable
- ☐ separable
- ☒ linear but not homogeneous
- ☐ linear and homogeneous

Question 4

Incorrect
Mark 0.00 out of 1.00
Remove flag

Solve the Bernoulli ODE $y' - y \tan x = y^8 \sin x$.

Select one:

- ☐ a. $y^7 = \cos^8 x + c \csc^7 x$
- ☐ b. $\frac{1}{y^7} = \frac{7}{8} \cos x + c \sec^7 x$
- ☒ c. $y^{-7} = c \cos x + \csc^7 x$
- ☐ d. $\frac{1}{y^7} = \cos x + c \csc^7 x$
- ☐ e. $y^{-8} = \frac{\frac{7}{8} \cos^8 x + c}{\cos^7 x}$

Question 5

Correct
Mark 1.00 out of 1.00
Flag question

The solution of the linear equation $(x^2 + 1)y' - 2xy = \tan(x^2)$ is given by

$$y(x) = \frac{1}{F(x)} \left(\int g(x) \cdot F(x) dx + c \right).$$

Find $F(x)$ only.

Select one:

- ☐ A. $1/(1-x^2)$
- ☐ B. $1-x^2$
- ☒ C. $1/(1+x^2)$
- ☐ D. $1+x^2$

Question 6

Correct
Mark 1.00 out of 1.00
Flag question

If the equation $(12x^m y^2 + x^2 \cos(x))dx + (24yx^{m+1} - y \ln y)dy = 0$ is exact, then the value of m is

1. $m = 1$
2. $m = 0$
3. $m = -1$
4. $m = -2$

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5. $m = 2$

Write the number of the choice that corresponds to the correct answer

4

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