1. **(1 point)** Library/UMN/calculusStewartCCC/s_17_1_6.pg
The general solution to the second-order differential equation $3y'' = 4y'$ is in the form $y(x) = c_1e^{rx} + c_2$. Find the value of r.
Answer: $r =$ _____
Correct Answers:
- 4/3

2. **(1 point)** Library/MiamiUOhio/DiffEq/Definitions_and_Terminology/Problem18.pg
Let $y''' - 10y'' + 9y' = 0$.

Find all values of r such that $y = e^{rx}$ satisfies the differential equation. If there is more than one correct answer, enter your answers as a comma separated list.

$r =$ _____ help (numbers)
Correct Answers:
- 0, 9, 1

3. **(1 point)** Library/MiamiUOhio/DiffEq/Definitions_and_Terminology/Problem19.pg
Let $t^2y'' + 11ty' + 24y = 0$.

Find all values of r such that $y = t^r$ satisfies the differential equation for $t > 0$. If there is more than one correct answer, enter your answers as a comma separated list.

$r =$ _____ help (numbers)
Correct Answers:
- -6, -4

4. **(1 point)** Library/Wiley/setAnton_Section_8.1/Question20.pg
For the differential equation $y'' + 4y' + 13y = 0$, a general solution is of the form $y = e^{-2x}(C_1 \sin 3x + C_2 \cos 3x)$, where C_1 and C_2 are arbitrary constants.
Applying the initial conditions $y(0) = 3$ and $y'(0) = 9$, find the specific solution.
y = _____
Correct Answers:
- e^(-2*x)*[5*sin(3*x)+3*cos(3*x)]

5. **(1 point)** Library/Utah/AP_Calculus_I/set10_Differential_Equations/q0.pg
Here are some initial value problems with obvious solutions, as discussed in class. In all cases the solutions are functions of x. All letters other than y and x denote constants.

The solution of
$$y' = ky, \quad y(0) = A$$
is
$y(x) =$ _____.
The solution of
$$y'' = k^2y, \quad y(1) = y(-1) = A$$
is
$y(x) =$ _____.
The solution of
$$y'' = k^2y, \quad y(1) = -y(-1) = A$$
is
$y(x) =$ _____.
The solution of
$$y'' = -k^2y, \quad y(0) = 1, \quad y'(0) = 0$$
is
$y(x) =$ _____.
The solution of
$$y'' = -k^2y, \quad y(0) = 0, \quad y'(0) = 1$$
is
$y(x) =$ _____.
The solution of
$$y'' = -k^2y, \quad y(0) = A, \quad y'(0) = B$$
is
$y(x) =$ _____.
Correct Answers:
- A*exp(k*x)
- A*(exp(k*x)+exp(-k*x))/(exp(k)+exp(-k))
- A*(exp(k*x)-exp(-k*x))/(exp(k)-exp(-k))
- cos(k*x)
- sin(k*x)/k
- A*cos(k*x)+B*sin(k*x)/k

6. **(1 point)** Library/UMN/calculusStewartCCC/s_17_1_30.pg
Solve the boundary-value problem $y'' - 4y' + 4y = 0$, $y(0) = 8$, $y(1) = 0$.
Answer: $y(x) =$ _____

Note: *If there is no solution, type "None".*
Correct Answers:
- 8*e^(2*x)-8*x*e^(2*x)