Quiz I, MTH 205, Fall 2015

Ayman Badawi

QUESTION 1. Solve for $y(x)$: $y^{(2)} - 2y' - 3y = e^{2x}, y(0) = y'(0) = 0$

Solve for $y(x)$: $y^{(2)} + 4y = 4, y(0) = 1, y'(0) = 0$

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Quiz II, MTH 205, Fall 2015

Ayman Badawi

QUESTION 1. a) $\ell^{-1}\left\{\frac{s+3}{(s-5)^2}\right\} =$

b) $\ell^{-1}\left\{\frac{se^{-3s}}{s^2+9}\right\}$

c) $\ell^{-1}\left\{\frac{se^{-5s}}{(s+7)^2}\right\}$

QUESTION 2. Solve for $y(x)$: $y^{(2)} - 6y' + 9y = 10, y(0) = 0, y'(0) = 1$

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Quiz III MTH 205, Fall 2015

Ayman Badawi

QUESTION 1. a) $\ell\left\{\int_0^x \cos(x-r)e^{(r-x)}\ dr\right\} =$

b) Use any method to Find $\ell^{-1}\left\{\dfrac{2}{(s^3(s+1))}\right\}$

QUESTION 2. Solve for $y(x)$: $y' = \sin(x) + \int_0^x y(x-r)\cos(r)\ dr, y(0) = 1$

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Quiz V, MTH 205, Fall 2015

Ayman Badawi

QUESTION 1.   (i) Assume the following DE has a solution. Find the general solution. $y^{(4)} - 2y^{(3)} + 5y^{(2)} = 0$.

(ii) Use (i) to find the solution to $y^{(4)} - 2y^{(3)} + 5y^{(2)} = e^x$.

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Quiz 6, MTH 205, Fall 2015

Ayman Badawi

QUESTION 1. Find the general solution to $2x^2 y^{(2)} + xy' - 3y = 0$

Find the general solution to $y^{(2)} - \frac{sin(x)^2 + cos(x)}{sin(x)} y' = 0$.

Find the general solution to $y^{(3)} + \frac{1}{x^2} y' = 0$

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Quiz 8 MTH 205, Fall 2015

Ayman Badawi

QUESTION 1. a) Find the general solution to $xy' - \frac{1}{2}y = 2.5\frac{x(1+ln(x))^4}{y}$

b) Find the general solution to $cos(x)y^{(2)} + sin(x)y' = (X+3)cos^2(x)$

c) A tank with capacity 20 liters contains 10 liters of water in which 20 grams of salt is dissolved. A mixture containing 1 gram of salt per liter is pumped into the tank at a rate 4 liters/min, the well-mixture solution is pumped out at rate 3 liters/min. Find the amount $A(t)$ of salt in the tank at time t. What will be the amount of salt in the tank at the instant it overflows?

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