## Module 4 - Assignment 4 Part 1 - Short Answers

Started: Sep 22 at 10:31pm

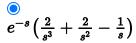
## **Quiz Instructions**

See the <u>Assignments (https://jhu.instructure.com/courses/106702/pages/assignments)</u> page for expectations, grading details, and how to submit your solutions.

Note: This assignment is due by day 7 of Module 4.

Question 15 pts

Compute the Laplace transform of  $\left(t^2-2
ight)u\left(t-1
ight)$ 



$$\begin{array}{l} \bigcirc \\ e^{-s} \left( \frac{2}{s^3} + \frac{1}{s^2} + \frac{2}{s} \right)
\end{array}$$

$$\begin{array}{l} \bigcirc \\ e^{-2s} \left( \frac{2}{s^3} + \frac{2}{s^2} + \frac{1}{s} \right) \end{array}$$

$$e^{-2s}\left(\frac{2}{s^3}-\frac{1}{s}\right)$$

Question 2 5 pts

Compute the Laplace transform of

$$f(t) = \left\{egin{aligned} t & ext{for } 0 \leq t < 1 \ e^t & ext{for } 1 \leq t \end{aligned}
ight.$$

$$\frac{1}{s^2} + e^{-s} \left( \frac{e^1}{s-1} - \frac{1}{s} - \frac{1}{s^2} \right)$$

$$\stackrel{\bigcirc}{e^{-s}}\left(rac{2}{s-1}-rac{1}{s}-rac{1}{s^2}
ight)$$

$$\bigcirc rac{1}{s} + e^{-s} \left( rac{1}{s-1} - rac{1}{s} - rac{1}{s^2} 
ight)$$

$$\bigcirc rac{1}{s} + e^s \Big( rac{e^1}{s-1} - rac{1}{s} - rac{1}{s^2} \Big)$$

Question 3 5 pts

Compute the inverse Laplace transform of  $\frac{3+2s}{s^2+4}$ 

$$\bigcirc \ rac{3}{2}{
m sin}(2t)+{
m cos}(2t)$$

$$\displaystyle igcirc$$
  $\displaystyle \sin(2t) + rac{3}{2} {\cos(2t)}$ 

$$\sin(2t) + 2\cos(2t)$$

$$rac{3}{2} \sin(2t) + 2\cos(2t)$$

Question 4 5 pts

Compute the inverse Laplace transform of  $\frac{3+s}{(s-2)(s+1)}$ 

$$rac{0}{rac{10}{3}}e^t-rac{2}{3}e^{-t}$$

$$\bigcirc \ rac{5}{3}e^{2t} - rac{4}{3}e^{-2t}$$

$$\frac{6}{3}e^{2t} - \frac{2}{3}e^{-t}$$

$$\bigcirc rac{5}{2}e^{3t}-rac{2}{3}e^{-t}$$

No new data to save. Last checked at 7:38pm

Submit Quiz