Math 2C03 2021 Pracpb 12 Sec 7.4-5 (18698062)

Due: Sat, May 1, 2021 11:00 PM EDT

Question 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

Description

Do as many as you need to feel comfortable.

---

1. Question Details ZillDiffEQ9 7.4.024. [3897234]

Use Theorem 7.4.2 to evaluate the given Laplace transform. Do not evaluate the convolution integral before transforming. (Write your answer as a function of s.)

$$\mathcal{L}\{t^2 * te^t\}$$

Need Help? Read It

---

2. Question Details ZillDiffEQ9 7.4.031. [3755997]

Use Theorem 7.4.2 to evaluate the given Laplace transform. Do not evaluate the convolution integral before transforming. (Write your answer as a function of s.)

$$\mathcal{L}\left\{\int_0^t \tau e^{t-\tau}\, d\tau\right\}$$

Need Help? Read It

---

3. Question Details ZillDiffEQ9 7.4.032. [3897249]

Use Theorem 7.4.2 to evaluate the given Laplace transform. Do not evaluate the convolution integral before transforming. (Write your answer as a function of s.)

$$\mathcal{L}\left\{\int_0^t \sin(\tau)\cos(t-\tau)\, d\tau\right\}$$

Need Help? Read It

4. Question Details ZillDiffEQ9 7.4.041. [3745273]

Use the Laplace transform to solve the given integral equation.

$$f(t) + \int_0^t (t - \tau) f(\tau) d\tau = t$$

$f(t) =$

Need Help? Read It

5. Question Details ZillDiffEQ9 7.4.043. [3745185]

Use the Laplace transform to solve the given integral equation.

$$f(t) = te^t + \int_0^t \tau f(t - \tau)\, d\tau$$

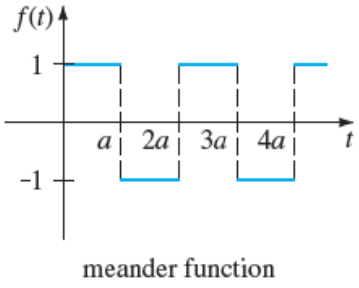
$f(t) =$

Need Help? Read It

6. Question Details ZillDiffEQ9 7.4.053. [3756086]

Use Theorem 7.4.3 to find the Laplace transform $F(s)$ of the given periodic function.

$F(s) =$



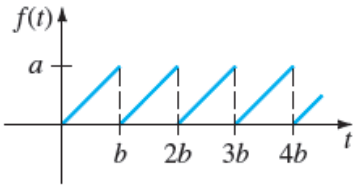
meander function

Need Help? Read It

7. Question Details ZillDiffEQ9 7.4.055. [3756051]

Use Theorem 7.4.3 to find the Laplace transform $F(s)$ of the given periodic function.

$F(s) =$



sawtooth function

Need Help? Read It

8. Question Details ZillDiffEQ9 7.4.067. [3745152]

Solve the integral equation

$$f(t) = e^t + e^t \int_0^t e^{-\tau} f(\tau)\, d\tau.$$

$f(t) =$

Need Help? Read It

9. Question Details ZillDiffEQ9 7.5.001.EP. [4903627]

Consider the following initial-value problem.

$$y' - 5y = \delta(t - 3), \quad y(0) = 0$$

Find the Laplace transform of the differential equation. (Write your answer as a function of s.)

$\mathcal{L}\{y\} =$

Use the Laplace transform to solve the given initial-value problem.

$y(t) =$ $+ \left(\quad \right) \mathcal{U}\left(t - \quad \right)$

Need Help? Read It

10. Question Details ZillDiffEQ9 7.5.002. [4568149]

Use the Laplace transform to solve the given initial-value problem.

$$y' + y = \delta(t - 1), \quad y(0) = 9$$

$y(t) =$ [ ] + ([ ]) $\mathcal{U}(t -$ [ ])

Need Help? Read It Watch It

11. Question Details ZillDiffEQ9 7.5.003. [3745382]

Use the Laplace transform to solve the given initial-value problem.

$$y'' + y = \delta(t - 4\pi), \quad y(0) = 0, \quad y'(0) = 1$$

$y(t) =$ ([ ]) + ([ ]) $\cdot\, \mathcal{U}(t -$ [ ])

Need Help? Read It

12. Question Details ZillDiffEQ9 7.5.005. [3745378]

Use the Laplace transform to solve the given initial-value problem.

$$y'' + y = \delta\left(t - \frac{1}{2}\pi\right) + \delta\left(t - \frac{9}{2}\pi\right), \quad y(0) = 0, y'(0) = 0$$

$y(t) =$ ([ ]) $\mathcal{U}\left(t - \frac{\pi}{2}\right)$ + ([ ]) $\mathcal{U}(t -$ [ ])

Need Help? Read It

13. Question Details ZillDiffEQ9 7.5.007.MI.SA. [4605485]

This question has several parts that must be completed sequentially. If you skip a part of the question, you will not receive any points for the skipped part, and you will not be able to come back to the skipped part.

Tutorial Exercise

Use the Laplace transform to solve the given initial-value problem.

$$y'' + 6y' = \delta(t - 1), \quad y(0) = 0, \quad y'(0) = 1$$

Need Help? Read It

14. Question Details ZillDiffEQ9 7.5.009.EP. [4903577]

Consider the following initial-value problem.

$$y'' + 10y' + 26y = \delta(t - 2\pi), \quad y(0) = 0, \quad y'(0) = 0$$

Find the Laplace transform of the differential equation. (Write your answer as a function of s.)

$\mathcal{L}\{y\} =$ [ ]

Use the Laplace transform to solve the given initial-value problem.

$y(t) =$ ([ ]) + ([ ]) $\mathcal{U}$($t -$ [ ])

Need Help? Read It

15. Question Details ZillDiffEQ9 7.R.012. [3745170]

Fill in the blank. (Enter your answer in terms of s.)

$\mathcal{L}\{\sin 6t\, \mathcal{U}(t - \pi)\} =$ [ ]

Need Help? Read It

16. Question Details ZillDiffEQ9 7.R.015. [3745151]

Fill in the blank. (Enter your answer in terms of t.)

$\mathcal{L}^{-1}\left\{\frac{1}{(s-3)^7}\right\} =$ [ ]

Need Help? Read It

17. Question Details ZillDiffEQ9 7.R.021. [3745309]

Fill in the blank.

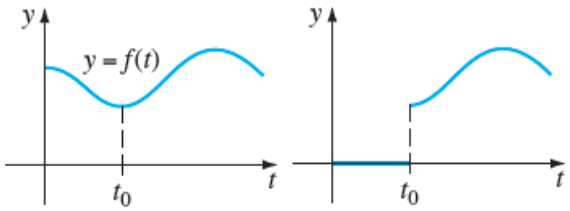
$\mathcal{L}\{e^{-8t}\}$ exists for $s >$ [ ].

Need Help? Read It

18. Question Details ZillDiffEQ9 7.R.025. [3745202]

Use the unit step function to write down an equation for graph II in terms of the function $y = f(t)$ shown in graph I.

I II



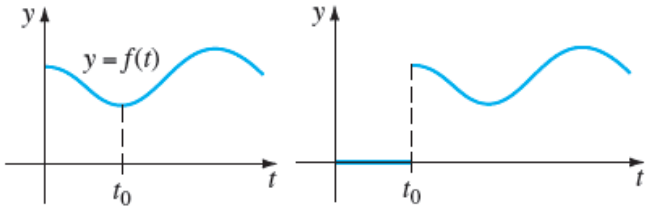
- $f\left(\mathcal{U}(t - t_0)\right)$
- $f(t - t_0) \cdot \mathcal{U}(t - t_0)$
- $f(t) \cdot \mathcal{U}(t - t_0)$
- $\dfrac{f(t)}{\mathcal{U}(t - t_0)}$
- $f(t) \cdot \mathcal{U}(t_0)$

Need Help? Read It

19. Question Details ZillDiffEQ9 7.R.027. [3745306]

Use the unit step function to write down an equation for graph II in terms of the function $y = f(t)$ shown in graph I.

I II

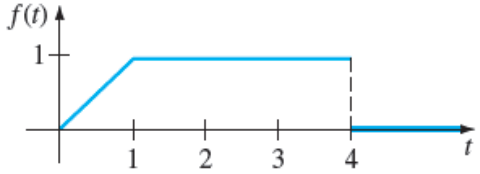


- $f(t) \cdot \mathcal{U}(t - t_0)$
- $f(t - t_0) \cdot \mathcal{U}(t_0)$
- $f(t - t_0) \cdot \mathcal{U}(t - t_0)$
- $\dfrac{f(t)}{\mathcal{U}(t - t_0)}$
- $f\left(\mathcal{U}(t - t_0)\right)$

Need Help? Read It

20. Question Details ZillDiffEQ9 7.R.029. [3745250]

Express f in terms of unit step functions.



- $t\mathcal{U}(t-1)-(t-1)-\mathcal{U}(t-4)$
- $t+\mathcal{U}(t-4)$
- $t+\mathcal{U}(t-1)-\mathcal{U}(t-4)$
- $t-1+\mathcal{U}(t-4)$
- $t-(t-1)\mathcal{U}(t-1)-\mathcal{U}(t-4)$

Find $\mathcal{L}\{f(t)\}$ and $\mathcal{L}\{e^t f(t)\}$. (Enter your answer in terms of s.)

$\mathcal{L}\{f(t)\} =$

$\mathcal{L}\{e^t f(t)\} =$

Need Help? Read It

21. Question Details ZillDiffEQ9 7.R.036. [3745367]

Use the Laplace transform to solve the given equation.

$$y'' - 8y' + 20y = te^t,\ y(0) = 0,\ y'(0) = 0$$

$y(t) =$

Need Help? Read It

22. Question Details ZillDiffEQ9 7.R.041. [3745364]

Use the Laplace transform to solve the given equation.

$$y'(t) = \cos t + \int_0^t y(\tau)\cos(t-\tau)d\tau,\quad y(0) = 1$$

$y(t) =$

Need Help? Read It

23. Question Details ZillDiffEQ9 7.R.043. [3745328]

Use the Laplace transform to solve the system.

$x' + y = t$
$16x + y' = 0$
$x(0) = 2, y(0) = 4$

$x =$

$y =$

Need Help? Read It

24. Question Details ZillDiffEQ9 7.R.044. [3745182]

Use the Laplace transform to solve the system.

$x'' + y'' = e^{2t}$
$2x' + y'' = -e^{2t}$
$x(0) = 0, y(0) = 0$
$x'(0) = 0, y'(0) = 0$

$x =$

$y =$

Need Help? Read It

Assignment Details

Name (AID): **Math 2C03 2021 Pracpb 12 Sec 7.4-5 (18698062)**
Submissions Allowed: **20**
Category: **Homework**
Code:
Locked: **Yes**
Author: **Lia Bronsard (** bronsard@mcmaster.ca **)**
Last Saved: **Apr 4, 2021 06:09 PM EDT**
Permission: **Protected**
Randomization: **Person**
Which graded: **Last**

Feedback Settings
Before due date
Question Score
Assignment Score
Publish Essay Scores
Question Part Score
Mark
Help/Hints
Response
Save Work
After due date
Question Score
Assignment Score
Publish Essay Scores
Question Part Score
Solution
Mark
Add Practice Button
Help/Hints
Response