

Answers
SPRING 2001

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Name _____

Laplace Transforms Homework #2 - Answers

For problems 1 - 10, find the Laplace Transform of each function.

1. $\frac{5}{s} - \frac{48}{s^4}$
2. $\frac{8s}{64s^2+9}$
3. $\frac{s-3}{(s-3)^2+4} - \frac{5}{(s-1)^2-25}$
4. $\frac{s-1}{s^2+1}$
5. $\frac{7!}{s^8} - \frac{4!}{s^5} + \frac{5(2!)}{s^3}$
6. $\frac{2s}{(s^2-1)^2}$
7. $\frac{s}{(s-5)^2}$
8. $\frac{s^3}{(s^2+1)} + \frac{s^2}{(s-1)^2} - s - 1$
9. $\frac{s^2}{s^4-1}$
10. $\frac{s-1}{s[(s-1)^2+4]}$

Further Instructions For problems 11 - 20, find the Inverse Laplace Transform of each function.

11. $\frac{2}{k} \sin(kt)$
12. $t^n e^{kt}$
13. $\cosh(kt)$
14. $\sin(t) - t \cos(t)$
15. $2e^{-9t} - 2e^{-4t} + 1$
16. $e^{-2t} + 2te^{-2t} - e^{2t} + 3te^{2t}$
17. $e^{-2t} + \frac{2}{7} \sin(7t)$
18. $3e^{3t} - 2$
19. $3 - 2t + \frac{1}{2}t^2 - 3e^{-t}$
20. $e^{-t} (2 \cos(4t) - \frac{5}{4} \sin(4t))$