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1. (1 point)
Use linearity and known computations for the Laplace transform to compute $\mathcal{L}\left\{\frac{\sin(2t)}{7}-5\right\}$.

- A. $\mathcal{L}\left\{\frac{\sin(2t)}{7}-5\right\} = \frac{2}{s^2+4}-5$
- B. $\mathcal{L}\left\{\frac{\sin(2t)}{7}-5\right\} = \frac{2}{7(s^2+2)}-\frac{5}{s}$
- C. $\mathcal{L}\left\{\frac{\sin(2t)}{7}-5\right\} = \frac{2}{7(s^2+4)}-\frac{5}{s}$
- D. $\mathcal{L}\left\{\frac{\sin(2t)}{7}-5\right\} = \frac{s}{7(s^2+4)}-\frac{5}{s}$

Solution:
SOLUTION:
The correct answer is $\frac{2}{7(s^2+4)}-\frac{5}{s}$.
Correct Answers:

- C

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2. (1 point)
Use linearity and known computations for the Laplace transform to compute $\mathcal{L}\left\{2e^{4t}+6\cos(3t)\right\}$.

- A. $\mathcal{L}\left\{2e^{4t}+6\cos(3t)\right\} = \frac{2}{s-4}+\frac{6s}{s^2+9}$
- B. $\mathcal{L}\left\{2e^{4t}+6\cos(3t)\right\} = \frac{2}{s-4}+\frac{3}{s^2+9}$
- C. $\mathcal{L}\left\{2e^{4t}+6\cos(3t)\right\} = \frac{4}{s^2-16}+\frac{6s}{s^2+9}$
- D. $\mathcal{L}\left\{2e^{4t}+6\cos(3t)\right\} = \frac{4}{s-4}+\frac{6s}{s^2+3}$

Solution:
SOLUTION:
The correct answer is $\frac{2}{s-4}+\frac{6s}{s^2+9}$.
Correct Answers:

- A

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3. (1 point)
Use linearity and known computations for the inverse Laplace transform to compute $\mathcal{L}\left\{\frac{5s-7}{s^2+2}\right\}$.

- A. $\mathcal{L}^{-1}\left\{\frac{5s-7}{s^2+2}\right\} = 5\sin\left(\sqrt{2}t\right)-\frac{7}{\sqrt{2}}\cos\left(\sqrt{2}t\right)$
- B. $\mathcal{L}^{-1}\left\{\frac{5s-7}{s^2+2}\right\} = 5\cos\left(\sqrt{2}t\right)-7\sin\left(\sqrt{2}t\right)$
- C. $\mathcal{L}^{-1}\left\{\frac{5s-7}{s^2+2}\right\} = 5\cos\left(\sqrt{2}t\right)-\frac{7}{\sqrt{2}}\sin\left(\sqrt{2}t\right)$
- D. $\mathcal{L}^{-1}\left\{\frac{5s-7}{s^2+2}\right\} = \frac{7}{2}\cos\left(\sqrt{2}t\right)-5\sin\left(\sqrt{2}t\right)$

Solution:
SOLUTION:
The correct answer is $5\cos\left(\sqrt{2}t\right)-\frac{7}{\sqrt{2}}\sin\left(\sqrt{2}t\right)$.
Correct Answers:

- C