

1. Find the inverse Laplace transform of $F(s) = \frac{s - 16}{s^2 + 16}$.
2. Find the inverse Laplace transform of $F(s) = \frac{-8}{s^2 - 1}$.
3. Find the inverse Laplace transform of $F(s) = \frac{s^3 + 4s^2 + 16s + 16}{(s^2 + 16)(s^2 + 4)}$.
4. Find the inverse Laplace transform of $F(s) = \frac{2s^3 + 2s^2 + 14s + 11}{s^4 + 5s^2 + 4}$.
5. Find the inverse Laplace transform of $F(s) = \frac{5s^2 + 5s - 4}{s(s + 2)(s - 1)}$.
6. Find the inverse Laplace transform of $F(s) = \frac{6}{3s + 2}$.
7. Find the inverse Laplace transform of $F(s) = \frac{3s^2 - 5s - 10}{(s + 2)(s - 1)(s - 2)}$.
8. Find the inverse Laplace transform of $F(s) = \frac{5s^2 + 6s - 3}{(s + 2)(s^2 + 1)}$.
9. Find the inverse Laplace transform of $F(s) = \frac{3s^2 - 3s + 9}{s(s^2 + 9)}$.
10. Use the Laplace transform to solve the following initial value problem: $y'' + y' - 2y = 0$, $y(0) = 3, y'(0) = 3$.
11. Use the Laplace transform to solve the following initial value problem: $y'' - 10y' + 24y = 0$, $y(0) = 2, y'(0) = 4$.
12. Use the Laplace transform to solve the following initial value problem: $y'' - 4y' = 6e^{3t} - 3e^{-t}$, $y(0) = 1, y'(0) = -1$.
13. Use the Laplace transform to solve the following initial value problem: $y'' - 10y' + 9y = 5t$, $y(0) = -1, y'(0) = -2$.