Inverse Laplace Transforms Part I

1. Find the following Inverse Laplace Transforms.

(a) $\mathcal{L}^{-1}\left\{\frac{1}{s^3}\right\}$

(b) $\mathcal{L}^{-1}\left\{\frac{1}{s^2} - \frac{48}{s^5}\right\}$

2. Find the following Inverse Laplace Transforms.

(a) $\mathcal{L}^{-1}\left\{\frac{(s+1)^3}{s^4}\right\}$

(b) $\mathcal{L}^{-1}\left\{\frac{2s-6}{s^2+9}\right\}$

3. Find the following Inverse Laplace Transform.

$\mathcal{L}^{-1}\left\{\frac{s}{s^2+2s-3}\right\}$

4. Find the following Inverse Laplace Transform.

$\mathcal{L}^{-1}\left\{\frac{s}{(s-2)(s-3)(s-6)}\right\}$

Common Inverse Laplace Transforms

$t^n = \mathcal{L}^{-1}\left\{\frac{n!}{s^{n+1}}\right\}$

$e^{at} = \mathcal{L}^{-1}\left\{\frac{1}{s-a}\right\}$

$sin(k \cdot t) = \mathcal{L}^{-1}\left\{\frac{k}{s^2+k^2}\right\}$

$cos(k \cdot t) = \mathcal{L}^{-1}\left\{\frac{s}{s^2+k^2}\right\}$