

# Tutorial: 10

Subject Code: 3110015

Year: 2018 - 2019

## Laplace Transform

Find the Inverse Laplace transform of following functions.

1.  $(0.1s + 0.9)/(s^2 + 3.24)$
2.  $\sum_{k=1}^5 a_k/(s + k^2)$
3.  $1/\sqrt{2s + 3}$
4.  $(s^4 + 6s - 18)/(s^5 - 3s^4)$
5.  $12/(s - 3)^5$
6.  $s/((s + \frac{1}{2})^2 + 1)$
7.  $(s + 2)/((s + 2)^2 + 4)$

Find the Laplace transform of following functions.

8.  $\sin 2t/t$
9.  $(1 - \cos t)/t$
10.  $(e^{-t} - e^{2t})/t$
11.  $(\cos t - \cos 2t)/t$

Find the Inverse Laplace transform of following functions.

12.  $s/(s^4 + s^2 + 1)$
13.  $s/(s^4 + 4a^2)$
14.  $(s + 3)/(s^2 + 6s + 13)^2$
15.  $1/(s^2 + 2s + 5)^2$
16.  $\ln\left(\frac{s+b}{s+a}\right)$
17.  $\tan^{-1}\left(\frac{2}{s}\right)$