



MAT215: Complex Variables & Laplace Transformations

Quiz-02

January 7, 2026

Total - 20 Marks

(You need to answer all questions)

Name:

ID:

Section:

1. Find the Laplace Transformation:

$$\mathcal{L} \{ t e^{-2t} \sin 2t \, u(t - \pi) \}$$

(10 Marks)

2. Find the inverse Laplace Transformation:

$$\mathcal{L}^{-1} \left\{ \frac{6s - 4}{s^2 - 8s - 9} e^{-\pi s} \right\}$$

(10 Marks)

Bonus Question:

1. Find the inverse Laplace Transformation:

$$\mathcal{L}^{-1} \left\{ -\frac{s}{(s^2 + 1)(s + 1)} e^{-\pi s} \right\}$$

Hint: Given that,

$$-\frac{s}{(s^2 + 1)(s + 1)} = \frac{-\frac{1}{2}s - \frac{1}{2}}{s^2 + 1} + \frac{\frac{1}{2}}{s + 1}$$

(2 Marks)

In remembrance of Sharif Osman Bin Hadi, whose courage and sacrifice will shape our nation.