# Math 301-162 Quiz 3 (B)

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**Q:1** (3 points) Find the Laplace transform of:

$$f(t) = \begin{cases} \cos 2t & 0 \le t < \frac{\pi}{6} \\ e^{2t} \sin 2t & t \ge \frac{\pi}{6} \end{cases}$$

**Q:2** (4 points) Solve the differential equation $y'' + 6y' + 25y = \delta(t - \pi)$ with $y(0) = 1$ and $y'(0) = 0$

**Q:3** (4 points) Solve the integral equation $f(t) + 2\int_0^t f(\tau)\cos(t-\tau)d\tau = \cos t$.