Page 1

$e^{-2t} u(t)$

1

$$\int_0^\infty e^{-st} e^{-2t} = \frac{1}{s+2} \qquad |s| > -2$$

2

$e^{-3t} u(t)$

$$\int_0^\infty e^{-st} e^{-3t} = \frac{1}{s+3} \qquad s > -3$$

$$\int_{-\infty}^0 e^{-st} e^{2t} \cancel{u(-t)} = \frac{-1}{s-2} \qquad s < 2$$

3

$$\int_0^\infty e^{-st} e^{2t} = \frac{1}{s-2} \qquad s < 2$$

$$\int_{-\infty}^0 e^{-st} e^{-3t} = \frac{-1}{s+3} \qquad s < -3$$

python
laplace_transform()
sympy.exp()

matlab
laplace()
exp()

plotting ROC
fill_between(x,y)

Page 2

1) $\frac{1}{s+2} + \frac{1}{s+3} = \frac{2s+5}{(s+2)(s+3)} = \frac{(s+2.5)}{(s+2)(s+3)}$

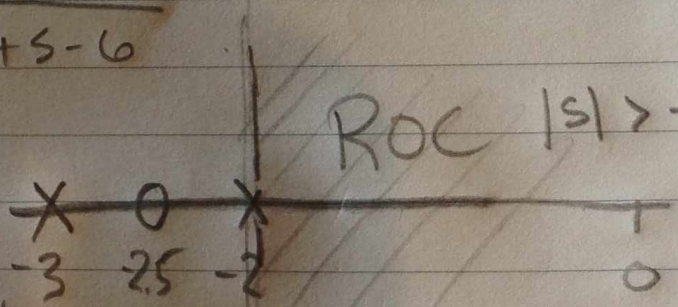
2) $\frac{1}{s+3} - \frac{1}{s-2} = \frac{(s+3)+(s-2)}{(s+3)(s-2)}$

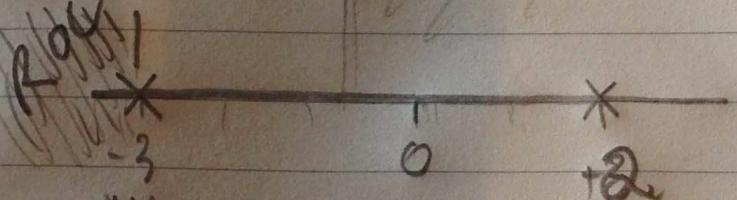
3) $\frac{1}{s-2} - \frac{1}{s+3} = \frac{(s+3)-(s+2)}{(s-2)(s+3)}$

1) $\frac{2s+5}{s^2+5s+6}$

2) $\frac{1}{s^2+s-6}$

3) $\frac{5}{s^2+s-6}$

1) 

2) 

3)