1. Laplace of

$$\sin(at) = \frac{a}{s^2+a^2} \quad = 5\left(\frac{2\pi}{s^2+4\pi^2}\right)$$

$$f(t) = 3x\delta(t) + 5\sin(2\pi t) \qquad = \frac{10\pi}{s^2+4\pi^2}$$

$$= \frac{3}{s}xe^{-s} + \frac{10\pi}{s^2+4\pi^2}$$

$$\boxed{= \frac{3e^{-s}}{s} + \frac{10\pi}{s^2+4\pi^2}}$$

2. inverse Laplace

$$\frac{2}{s^2+8s+15} = \frac{1}{s+3} - \frac{1}{s+5} = \boxed{e^{-3t} - e^{-5t}}$$