Rješenja i upute za treću domaću zadaću iz Matematike 3 (R+E)

1.

$$y(t) = \frac{1}{16}e^{-t}(9 + 7e^{4t} - 12te^{2t}).$$

2.

$$y(t) = (2 - \frac{3t}{4})\cos(2t) - \frac{1}{8}\sin(2t)$$

3.

$$y(t) = \frac{e^t}{5} + e^{-t}\cos t + \frac{2}{5}e^{-t}\sin t.$$

4.

$$y(t) = -1 + 2e^{-t} + t + (t + e^{2-t} - 3)u(t-2) - 2(-2 + e^{1-t} + t)u(t-1).$$

5.

$$y(t) = 1 - \cos t + 2(-1 + \cos(t-1))u(t-1).$$

6.

$$y(t) = t + 1.$$

7.

$$y(t) = \frac{1}{4}(-e^{-t} + e^t + 2\sin t).$$

8. greška u zadatku, umjesto $3y'(t)$ treba pisati $3y(t)$.

$$y(t) = -\sin t + \sqrt{2}\sin(t\sqrt{2}).$$

9.

$$x(t) = \frac{1}{120}e^{-7t}(11 - 56e^{3t} + 24e^{5t} + 21e^{8t}),$$

$$y(t) = \frac{1}{120}e^{-7t}(-11 - 28e^{3t} + 36e^{5t} + 3e^{8t}.)$$

10.

$$i(t) = \frac{A}{R}t + \frac{1}{R}(t-T)u(t-T) + AC + ACu(t-T) + ACT\delta(t-T)u(t-T) + \frac{AT}{R}u(t-T).$$

11.

$$i(t) = \frac{1}{L}(1 - \cos t + (\cos t)u(t - \frac{\pi}{2})).$$

12.

$$i(t) = \frac{A}{2L}t^2 - \frac{A}{2L}(t-T)^2u(t-T) - \frac{AT}{L}(t-T)u(t-T).$$