RESPUESTAS TAREA 2A

1. $W = x\ln(x) + 2x$ → linealmente independientes
2. $W = 2e^{2x}$ → linealmente independientes
3. $W = 9x^{-6}$ → linealmente independientes
4. $y_2 = xe^{2x}$
5. $y_2 = 1$
6. $y_2 = x^4 \ln x$
7. $y_2 = 2 + 3x$
8. $y = C_1 e^{4x} + C_2 e^{-4x}$
9. $y = C_1 \operatorname{sen}\left(\frac{x}{2}\right) + C_2 \cos\left(\frac{x}{2}\right)$
10. $y = C_1 e^{-4x} + C_2 x e^{-4x}$
11. $y = C_1 e^{\left(-2+\sqrt{5}\right)x} + C_2 x e^{\left(2-\sqrt{5}\right)x}$
12. $y = C_1 e^{2x} \operatorname{sen} x + C_2 e^{2x} \cos x$
13. $y = C_1 e^{-\frac{x}{2}} \operatorname{sen}\left(\frac{x}{2}\right) + C_2 e^{-\frac{x}{2}} \cos\left(\frac{x}{2}\right)$

RESPUESTAS TAREA 2B

1. $y = C_1 e^{-2x} + C_2 e^{x/2} + C_3 e^{3x} + C_4 x e^{3x}$
2. $y = C_1 e^{-2x} + C_2 e^{-2x} + C_3 e^{x/2} + C_4 e^{3x} + C_5 x e^{3x}$
3. $y = C_1 e^{-t/2} \cos\left(\frac{\sqrt{3}}{2}t\right) + C_2 e^{-t/2} \operatorname{sen}\left(\frac{\sqrt{3}}{2}t\right) + \frac{1}{2} + \frac{3}{26}\cos 2t - \frac{1}{13}\operatorname{sen} 2t$
4. $y = C_1 e^{x/2} + C_2 e^{-x/2} + C_3 \cos\left(\frac{x}{2}\right) + C_4 \operatorname{sen}\left(\frac{x}{2}\right) + \frac{1}{8} x e^{x/2}$
5. $y = C_1 e^{x} + C_2 x e^{x} - \frac{1}{2} e^{x} \ln\left(1 + x^2\right) + x e^{x} \arctan x$

6. $y = C_1 e^x \cos 3x + C_2 e^x \operatorname{sen} 3x - \frac{1}{3} e^x \cos(3x) \ln \left| \frac{1+\operatorname{sen} 3x}{\cos 3x} \right|$

RESPUESTAS DE LA TAREA 3A

1. $\frac{4}{s^2} - \frac{8}{s^3} + \frac{4e^{-s}}{s^2} + \frac{8e^{-s}}{s^3}$
2. $\frac{e^7}{s-2}$
3. $\frac{2}{s^3} - \frac{1}{s+9} + \frac{5}{s}$
4. $\frac{\sqrt{3}}{18}\left[\operatorname{senh}\left(t\sqrt{3}\right) - \operatorname{sen}\left(t\sqrt{3}\right)\right]$
5. $\frac{1-e^{-2\pi s}}{s^2+1}$
6. $\frac{2}{s^2+16}$
7. $\frac{1-\gamma-\ln s}{s^2}$
8. $\ln\left(\frac{s+1}{s-1}\right)$
9. $\frac{1}{s}\sqrt{\frac{\pi}{s+1}}$
10. $t-(t-1)\mathcal{U}(t-1)$
11. $\frac{4}{25} + \frac{t}{5} + \frac{e^{2t}}{25}(3\operatorname{sen} t - 4\cos t)$
12. $2\frac{s + 2e^{-\pi s/4} - 2e^{-3\pi s/4} + se^{-\pi s}}{s\left(s^2+4\right)\left(1+e^{-\pi s}\right)}$

RESPUESTAS TAREA 4A

1. $\begin{cases} x = -2e^{3t} + \frac{5}{2}e^{2t} - \frac{1}{2} \\ y = \frac{8}{3}e^{3t} - \frac{5}{2}e^{2t} - \frac{1}{6} \end{cases}$

2. $\begin{cases} x = -\frac{1}{3}e^{-2t} + \frac{1}{3}e^{t} \\ y = \frac{1}{3}e^{-2t} + \frac{2}{3}e^{t} \end{cases}$

3. $\begin{cases} x = -\cos 3t - \frac{5}{3}\operatorname{sen} 3t \\ y = 2\cos 3t - \frac{7}{3}\operatorname{sen} 3t \end{cases}$

4. $\begin{cases} x = \frac{1}{2}t^2 + t + 1 - e^{-t} \\ y = \frac{1}{3}e^{-t} + \frac{1}{3}te^{-t} - \frac{1}{3} \end{cases}$

RESPUESTAS DE LA TAREA 5A

1. $\frac{1-e^{-\pi}}{\pi} + \frac{2}{\pi}\sum_{n=1}^{\infty}\frac{1-(-1)^n e^{-\pi}}{n^2+1}\cos(nx)$

2. $\frac{\operatorname{sen}(3)}{3} + 6\operatorname{sen}(3)\sum_{n=1}^{\infty}\frac{(-1)^n}{n^2\pi^2 - 9}\cos\left(\frac{n\pi x}{3}\right)$

3. $\frac{1}{5} + \frac{8}{\pi^2}\sum_{n=1}^{\infty}\frac{(n^2\pi^2 - 6)(-1)^n}{n^4}\operatorname{sen}(n\pi x)$