

## Gyakorló feladatok megoldásai - 2.

MA1222i

1. (a)  $y = \begin{cases} \frac{1}{2}(1 - e^{-2x}), & 0 \leq x \leq 1, \\ \frac{1}{2}(e^2 - 1)e^{-2x}, & x > 1 \end{cases}$   
 (b)  $y = \begin{cases} e^{-2x}, & 0 \leq x \leq 1, \\ e^{-(x+1)}, & x > 1 \end{cases}$
  
2. (a)  $y = \sqrt{y_0^2 - 4x^2}$ , ha  $y_0 > 0$ ,  $|x| < |y_0|/2$ , és  
 $y = -\sqrt{y_0^2 - 4x^2}$ , ha  $y_0 < 0$ ,  $|x| < |y_0|/2$ .  
 (c)  $y = \begin{cases} \frac{1}{2}(1 - e^{-2x}), & 0 \leq x \leq 1, \\ \frac{1}{2}(e^2 - 1)e^{-2x}, & x > 1 \end{cases}$
  
3. (a)  $y = \pm \sqrt{\frac{5x}{2 + 5cx^5}}$   
 (c)  $y = \pm \frac{\sqrt{2 + 5ce^{-10x}}}{1 + ce^{-10x}}$
  
4. (a)  $y \sin x + x^2 e^y - y = c$   
 (c)  $x^3 - x^2 y + 2x + 2y^3 + 3y = c$   
 (e)  $x^3 y + \frac{1}{2} x^2 y^2 = c$ ,  $\mu(x) = x$   
 (g)  $x^2 e^x \sin y = c$ ,  $\mu(x) = x e^x$   
 (i)  $y = c e^x + 1 + e^{2x}$ ,  $\mu(x) = e^{-x}$
  
5. (a)  $y = \frac{cx^2}{1 - cx}$   
 (c)  $x^2 + y^2 - cx^3 = 0$   
 (e)  $|y - x + 3| = c|y + x + 1|^3$   
 (g)  $\frac{-2(x - 2)}{x + y - 3} = \ln c|x + y - 3|$
  
6. (a)  $y = \frac{c}{x^2} + \frac{x^3}{5}$   
 (c)  $e^x + e^{-y} = c$   
 (e)  $y = \frac{1 - e^{1-x}}{x}$   
 (g)  $y^3 + 3y - x^3 + 3x = c$   
 (i)  $y = \operatorname{arc ch} x$