Beg Center

For 2.0

$$y = f(a) + f'(a)(x-a) + \frac{f''(a)}{2}(x-a)^2 + \frac{f'''(a)}{6}(x-a)^3 + \frac{f''''(0)}{24}(x-a)^4$$

Now, $a = 0$. $y(0) = 1$ $y'(0) = -1$

$y'' = 2xy' - x^2 y$

$y = y(0) + y'(0)(x-a) + \dots$

$y = 1 - x + \frac{y''(0)}{2}x^2 + \dots$

$y'' = 2 \cdot 0 \cdot y' - x^2 \cdot 0$
$= 0$

$$y = 1 - x + 0 + \frac{y'''(0)}{6}x^3 + \frac{y''''(0)}{24}x^4$$

$y''' = 2xy'' + 2y' - x^2 y' - 2xy$

$y'''(0) = 0 + 2y' = -2$

$$y = 1 - x - \frac{2x^3}{6} - \frac{2}{24}x^4$$

$$y = 1 - x - \frac{1}{3}x^3 - \frac{1}{12}x^4$$

$y'''' = 2xy''' + 2y'' + 2y'' - x^2 y'' - 2xy'$

$y''''(0) = 0 + 2(0) + 2(0) - 0 - 2(1) - 2xy'$
$= -2 - 2y$

1a

$$y = 1 - x - \frac{1}{3}x^3 - \frac{1}{12}x^4$$

$$y(3.5) = 1 - 3.5 - \frac{1}{3}(3.5)^3 - \frac{1}{12}(3.5)^4$$

$$y(3.5) = -29.297$$