Taller 24 Daniel Amado

⊙ Class	
⏱ Created	@May 19, 2021 8:24 AM
⌯ Materials	
☰ Property	
☑ Reviewed	☐
☰ Topic	

Parte 1: por Lagrange

💡 **Función del programa**

$$f(x) = -17.6 + 44.88333333333337x - 39.548333333333346x^2 + 17.09166666666667x^3 - 3.8333333333333344x^4 + 0.42500000000000016x^5 - 0.01833333333333334x^6$$

💡 **Gráfica de la función**
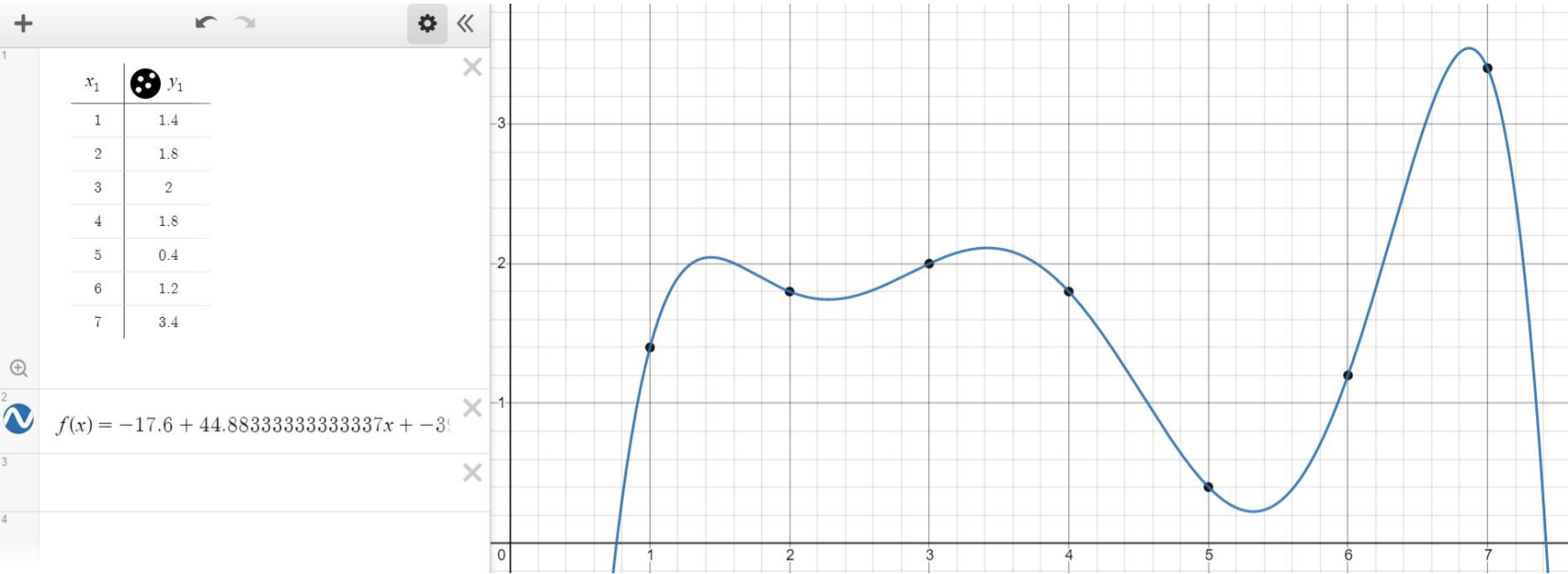
💡 **Estimación de valor para x = 4,25**

$$f(4.25) = -17.6 + 44.88333333333337(4.25) - 39.548333333333346(4.25)^2 + 17.09166666666667(4.25)^3 - 3.8333333333333344(4.25)^4 + 0.42500000000000016(4.25)^5 - 0.01833333333333334(4.25)^6$$

$$f(4.25) = -17.6 + 190.7541666666668 - 714.3417708333336 + 1312.0524739583334 - 1250.6399739583337 + 589.2961181640627 - 108.0376216634115$$

$$f(4.25) = 1.483392333984085$$

💡 **Primera derivada**

$$f'(x) = 44.88333333333337 - 79.09666666666669x + 51.275000000000006x^2 - 15.333333333333337x^3 + 2.125000000000001x^4 - 0.11000000000000004x^5$$
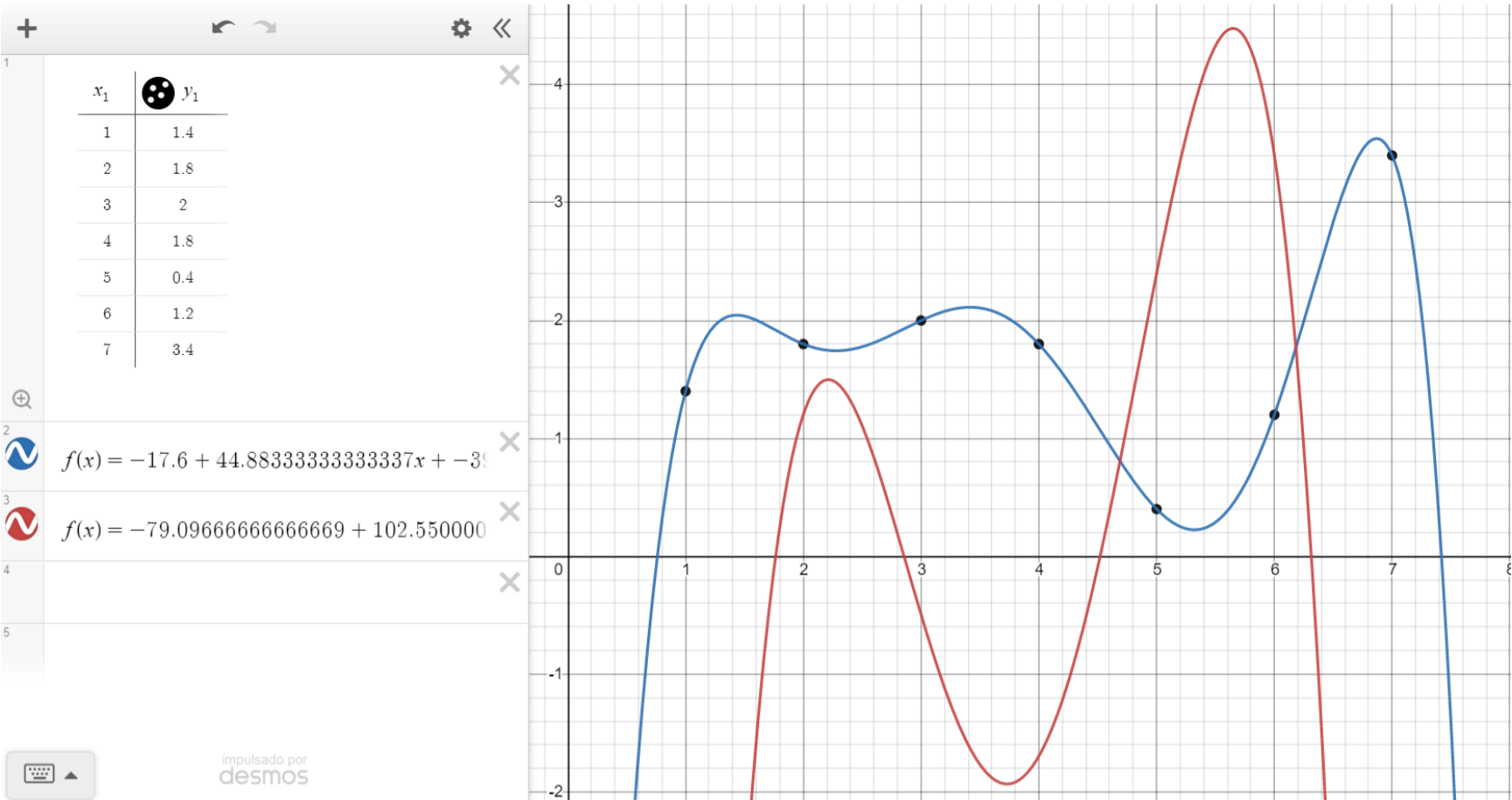
💡 **Gráfica primera derivada (roja)**
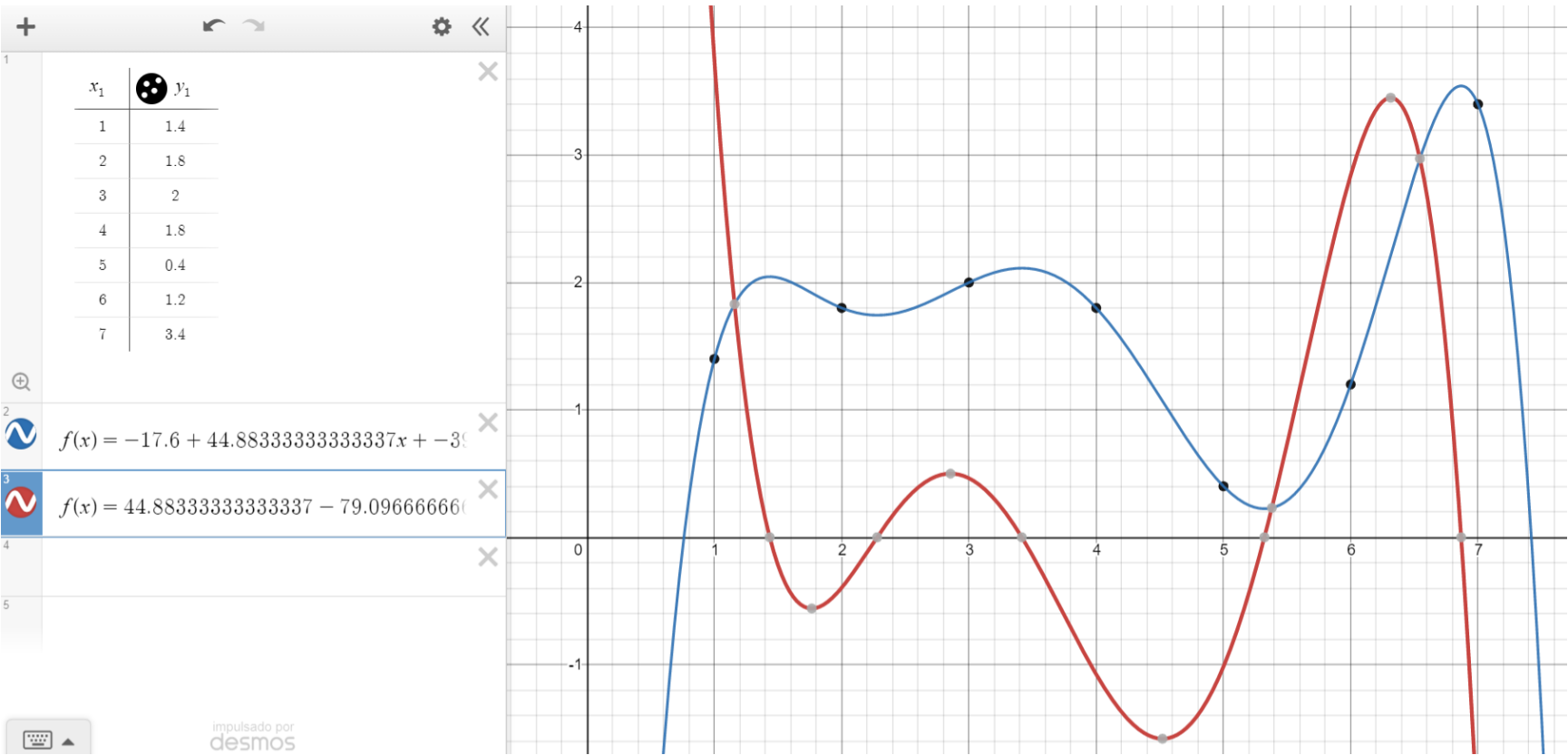
Segunda derivada

$$f''(x) = -79.09666666666669 + 102.55000000000001x - 46.000000000000014x^2 + 8.500000000000004x^3 - 0.5500000000000003x^4$$
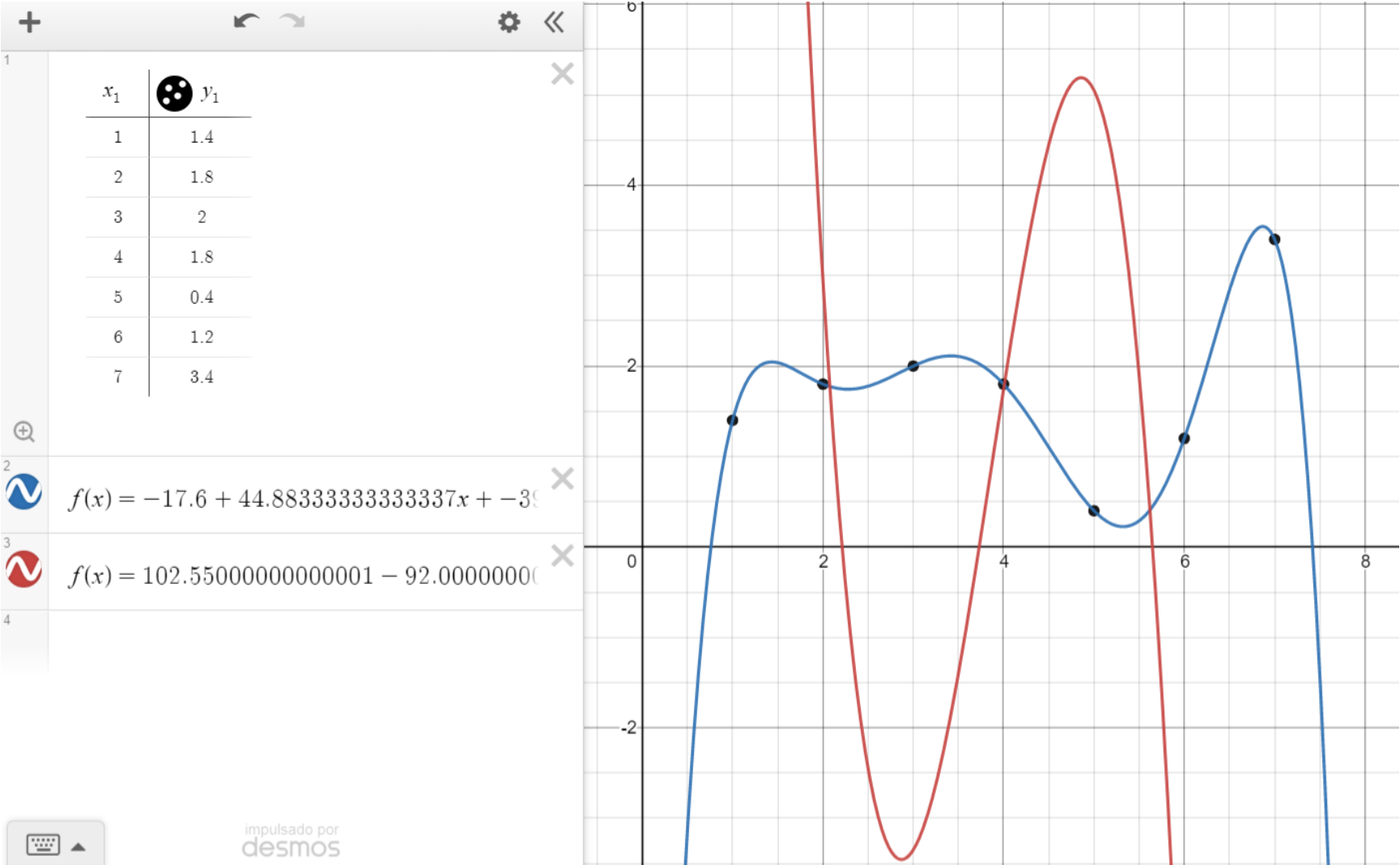
Gráfica segunda derivada (roja)

Tercera Derivada

$$f'''(x) = 102.55000000000001 - 92.00000000000003x + 25.50000000000001x^2 - 2.200000000000001x^3$$

Gráfica Tercera Derivada

x_1	🎡 y_1
1	1.4
2	1.8
3	2
4	1.8
5	0.4
6	1.2
7	3.4

$f(x) = -17.6 + 44.88333333333337x + -39$

$f(x) = 102.55000000000001 - 92.0000000($

Parte 2: por Trazadores Cúbicos

💡 **Funciones del programa**

$$f(x) = 0.9999999999999998 + 0.28512820512820514x + 0.17230769230769244x^2 + -0.05743589743589748x^3 \, \{x >= 1.0\}\{x < 2.0\}$$
$$f(x) = -0.1569230769230776 + 2.0205128205128213x + -0.6953846153846157x^2 + 0.08717948717948723x^3\{x >= 2.0\}\{x < 3.0\}$$
$$f(x) = 15.46153846153846 + -13.597948717948718x + 4.51076923076923x^2 + -0.4912820512820512x^3\{x >= 3.0\}\{x < 4.0\}$$
$$f(x) = -84.96923076923075 + 61.725128205128186x + -14.319999999999997x^2 + 1.0779487179487177x^3\{x >= 4.0\}\{x < 5.0\}$$
$$f(x) = 102.33846153846149 + -50.65948717948715x + 8.156923076923073x^2 + -0.42051282051282024x^3\{x >= 5.0\}\{x < 6.0\}$$
$$f(x) = 53.8215384615385 + -26.40102564102566x + 4.113846153846157x^2 + -0.19589743589743602x^3\{x >= 6.0\}\{x < 7.0\}$$

💡 **Gráfica de las funciones**

$f(x) = 0.9999999999999998 + 0.2851282$

$f(x) = -0.1569230769230776 + 2.02051$

$f(x) = 15.46153846153846 + -13.59794$

$f(x) = -84.96923076923075 + 61.72512$

$f(x) = 102.33846153846149 + -50.6594$

$f(x) = 53.8215384615385 + -26.401025$
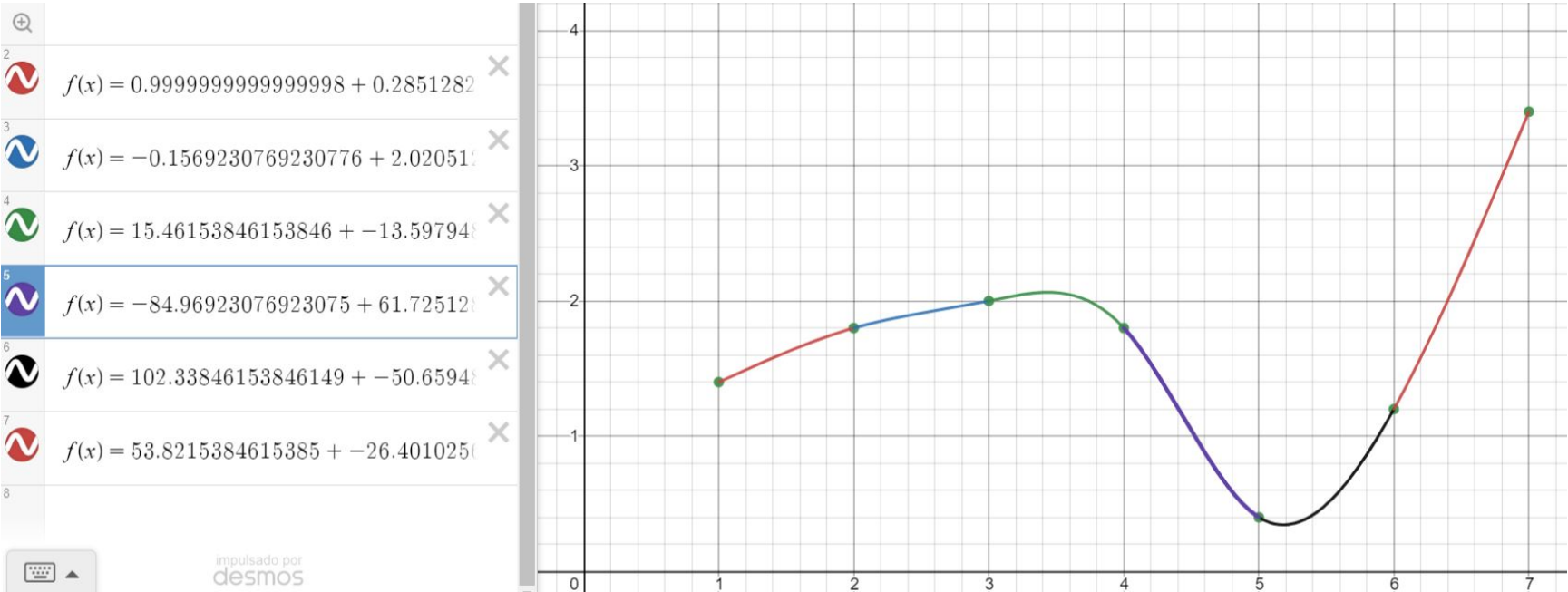
💡 **Estimación de valor para x = 4,25 en la función 4**

$$f(4.25) = -84.96923076923075 + 61.725128205128186(4.25) + -14.319999999999997(4.25)^2 + 1.0779487179487177(4.25)^3\{x >= 4.0\}\{x < 5.0\}$$

$$f(4.25) = 1.4569711538461405$$

💡 **Primera derivada de cada función**

$$f(x) = 0.28512820512820514 + 0.3446153846153849x - 0.17230769230769244x^2 \ \{x >= 1.0\}\{x < 2.0\}$$
$$f(x) = 2.0205128205128213 - 1.3907692307692314x + 0.2615384615384617x^2 \ \{x >= 2.0\}\{x < 3.0\}$$
$$f(x) = -13.597948717948718 + 9.02153846153846x - 1.4738461538461536x^2 \ \{x >= 3.0\}\{x < 4.0\}$$
$$f(x) = 61.725128205128186 - 28.639999999999993x + 3.2338461538461534x^2 \ \{x >= 4.0\}\{x < 5.0\}$$
$$f(x) = -50.65948717948715 + 16.313846153846146x - 1.2615384615384606x^2 \ \{x >= 5.0\}\{x < 6.0\}$$
$$f(x) = -26.40102564102566 + 8.227692307692314x - 0.5876923076923081x^2 \ \{x >= 6.0\}\{x < 7.0\}$$

💡 **Gráfica de las primeras derivadas**
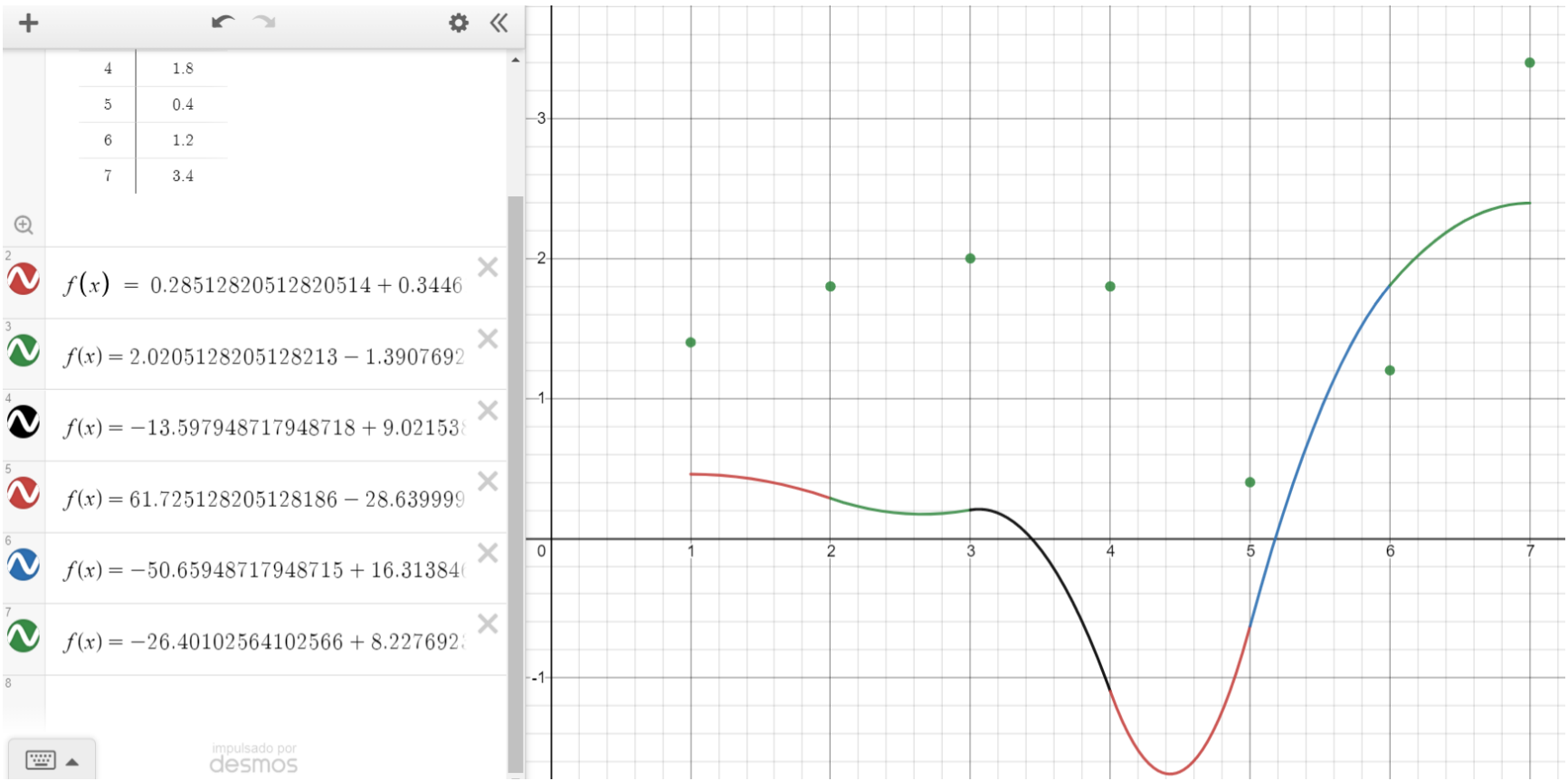
💡 **Segundas derivadas de cada función**

$$f(x) = 0.3446153846153849 - 0.3446153846153849x \ \{x >= 1.0\}\{x < 2.0\}$$
$$f(x) = -1.3907692307692314 + 0.5230769230769234x \ \{x >= 2.0\}\{x < 3.0\}$$
$$f(x) = 9.02153846153846 - 2.947692307692307x \ \{x >= 3.0\}\{x < 4.0\}$$
$$f(x) = -28.639999999999993 + 6.467692307692307x \ \{x >= 4.0\}\{x < 5.0\}$$
$$f(x) = 16.313846153846146 - 2.523076923076921x \ \{x >= 5.0\}\{x < 6.0\}$$
$$f(x) = 8.227692307692314 - 1.1753846153846161x \ \{x >= 6.0\}\{x < 7.0\}$$

💡 **Gráficas de las segundas derivadas**

💡 **Terceras derivadas de cada función**
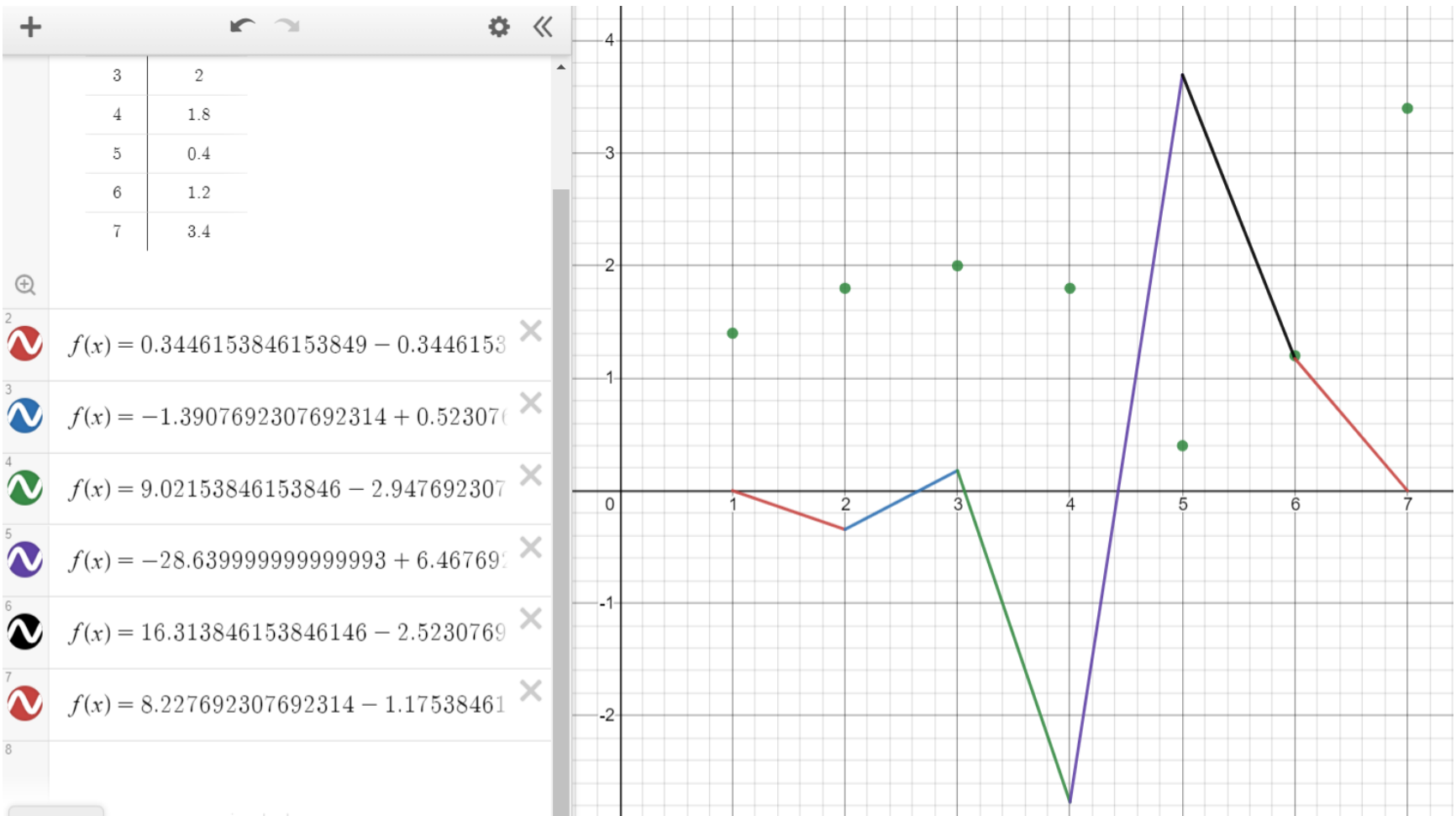
$$f(x) = -0.3446153846153849$$
$$f(x) = 0.5230769230769234$$
$$f(x) = -2.947692307692307$$
$$f(x) = 6.467692307692307$$
$$f(x) = -2.523076923076921$$
$$f(x) = -1.1753846153846161$$

💡 **Gráficas de las terceras derivadas**