

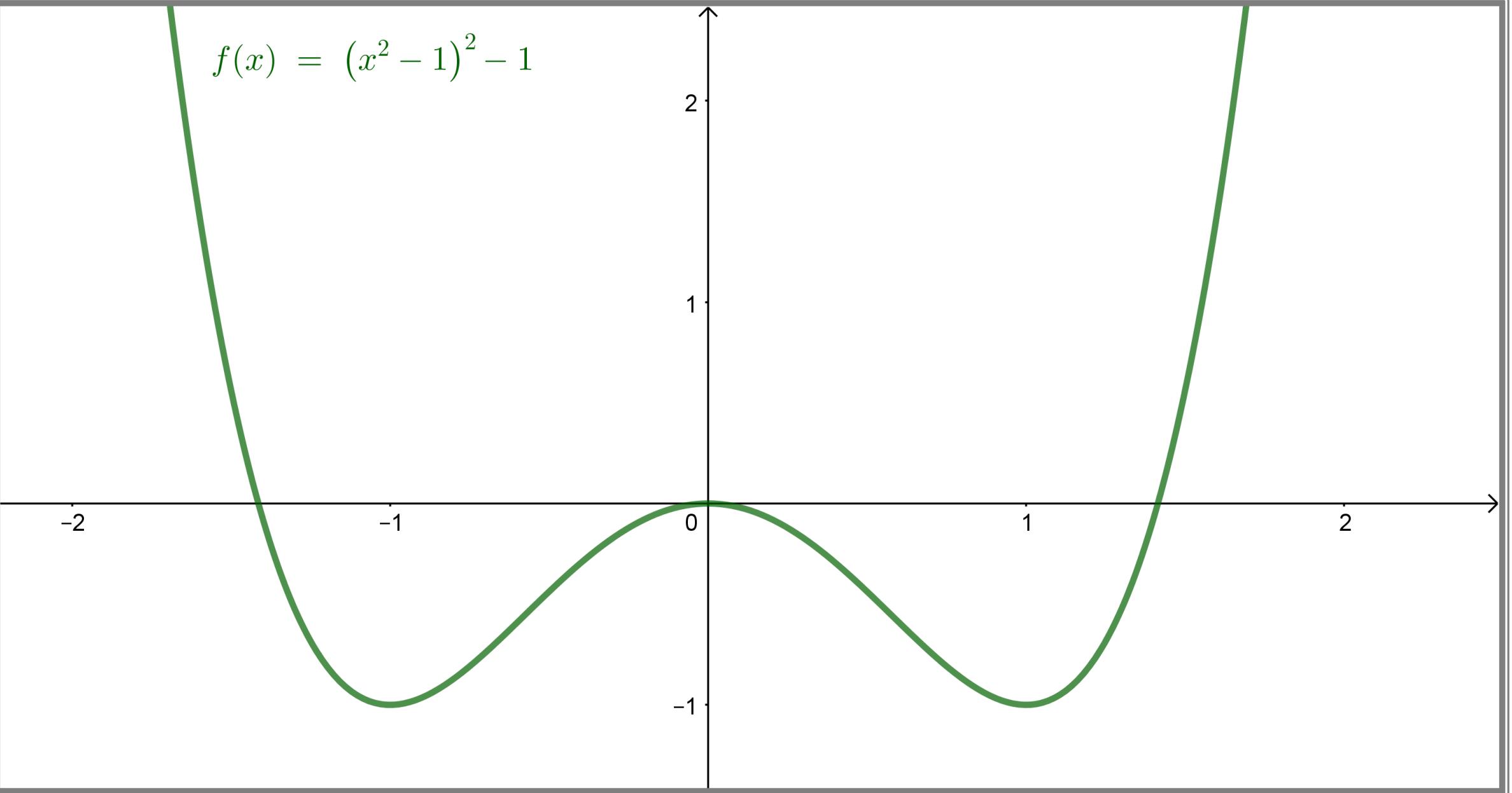
# 6.5 Esquisse de la courbe décrite par une fonction

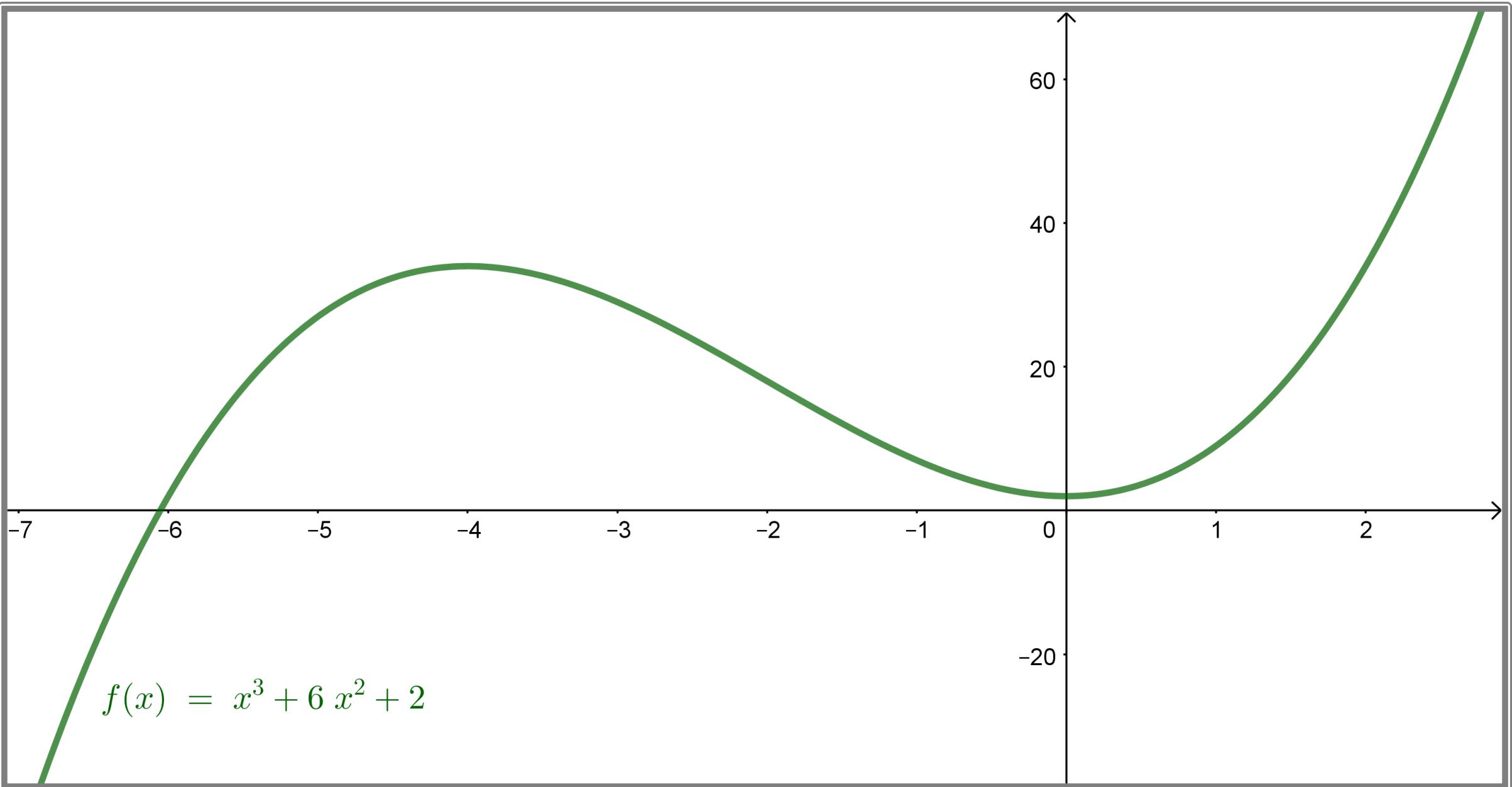
Cégep de Sherbrooke

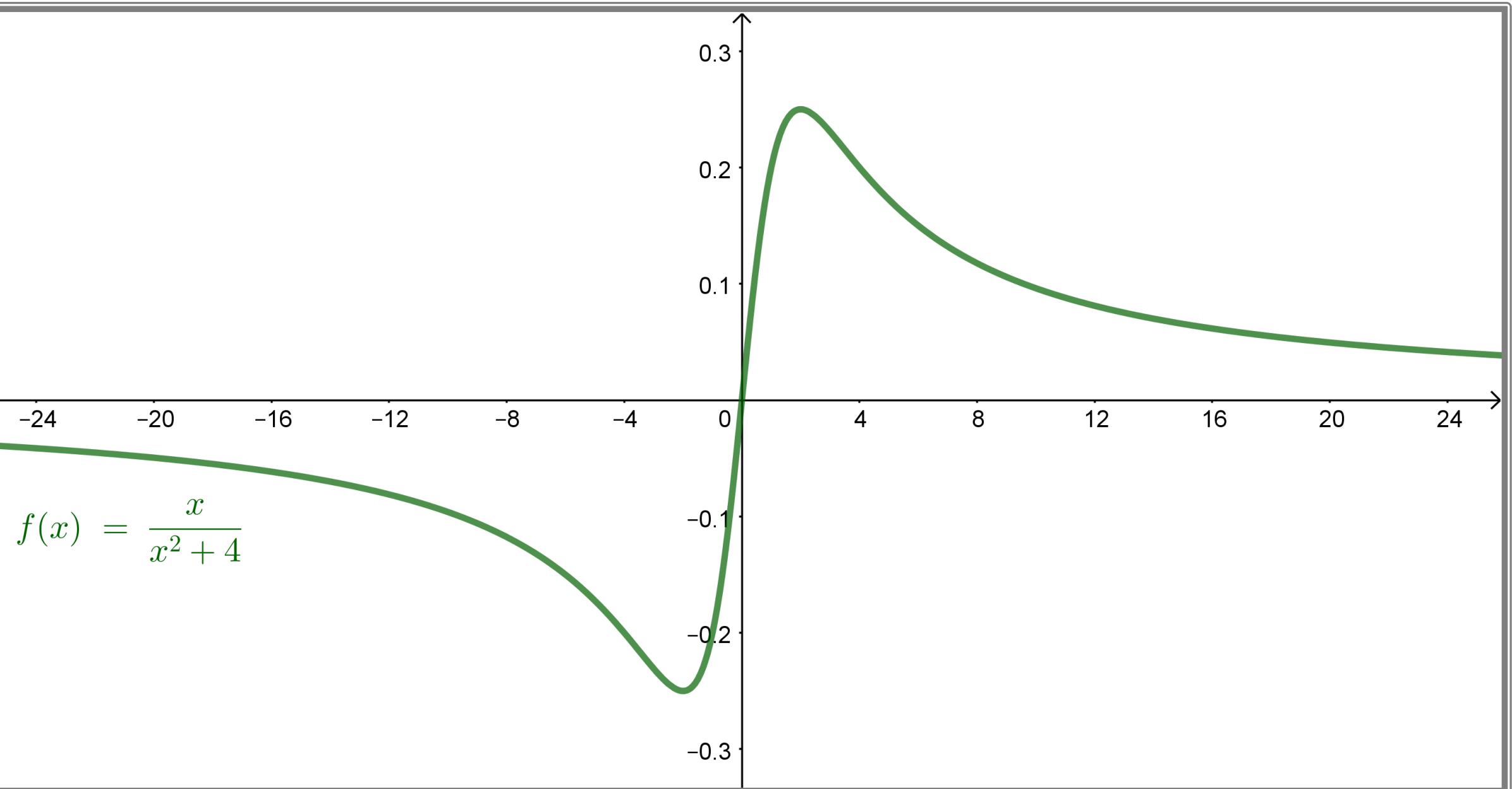
Calcul différentiel (201-SN2-RE)

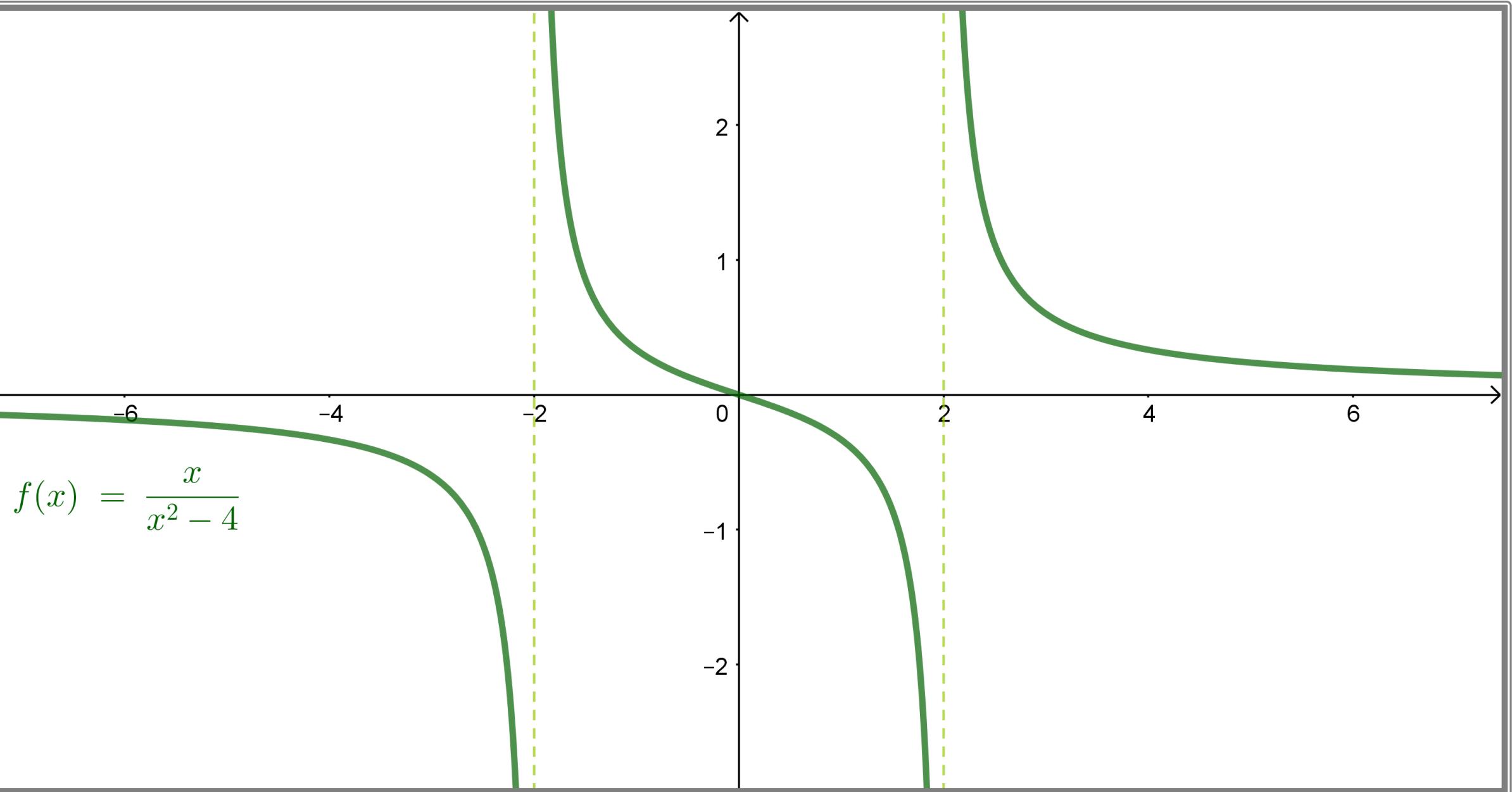
Hiver 2025

$$f(x) = (x^2 - 1)^2 - 1$$

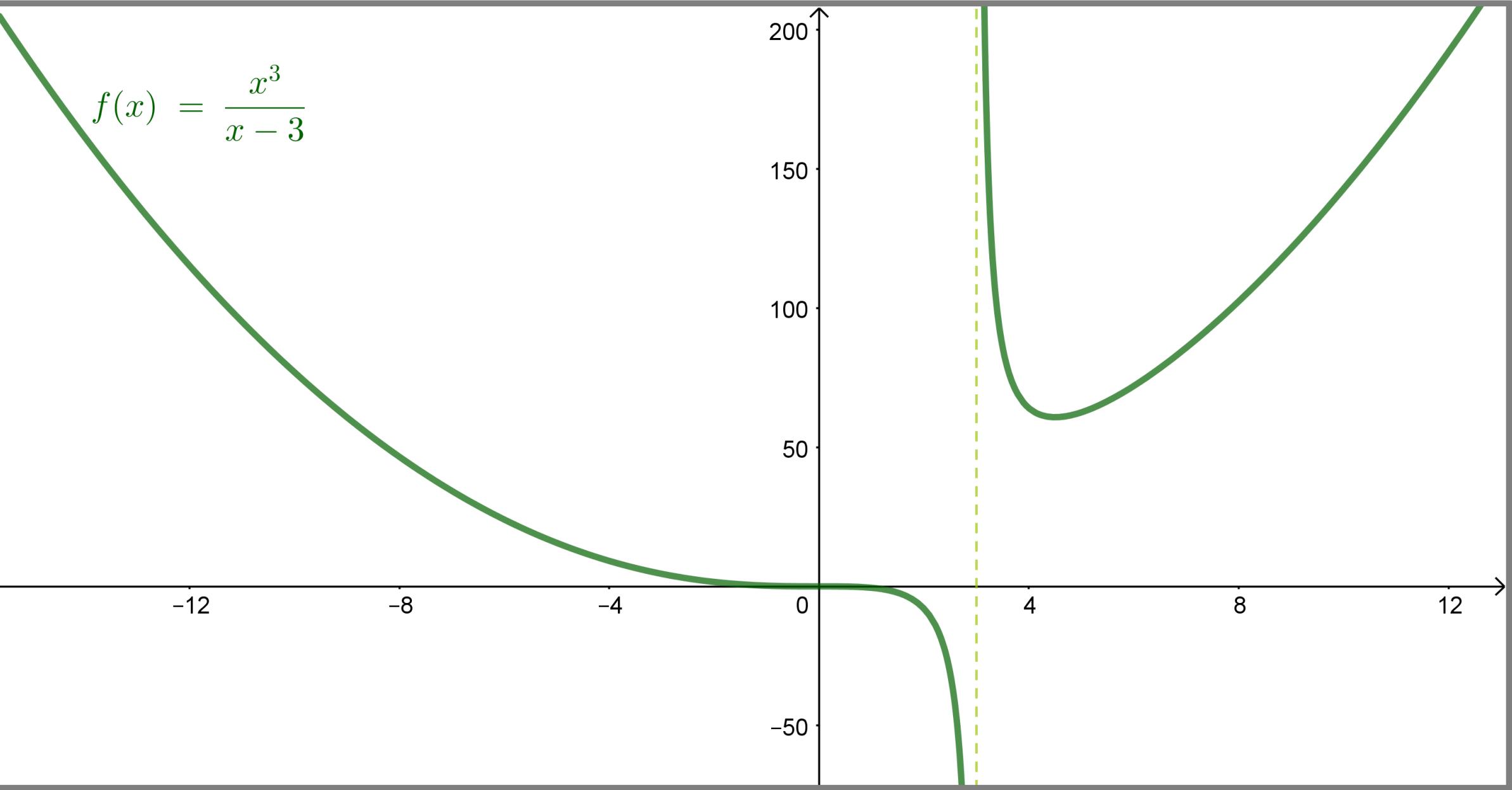


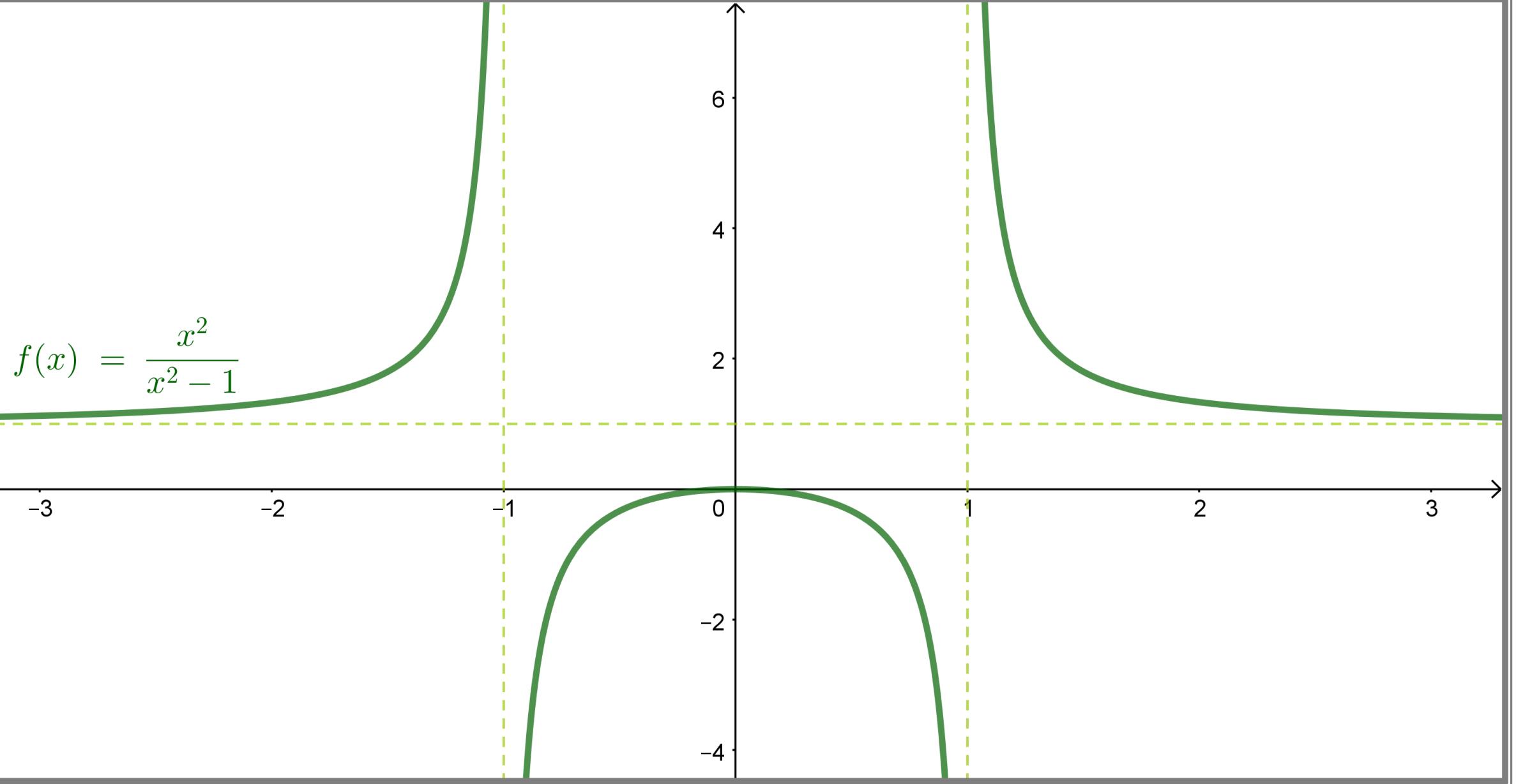


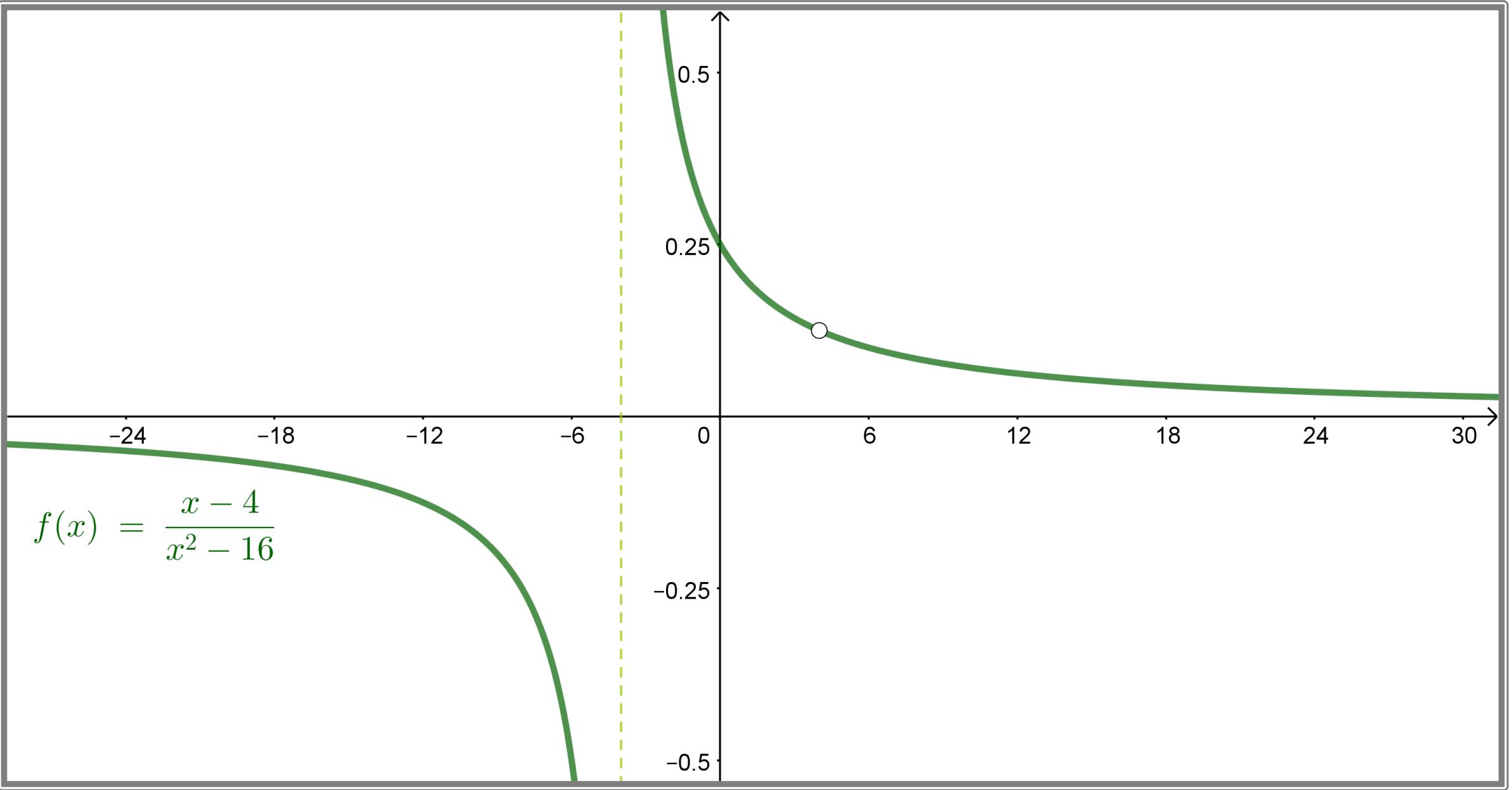


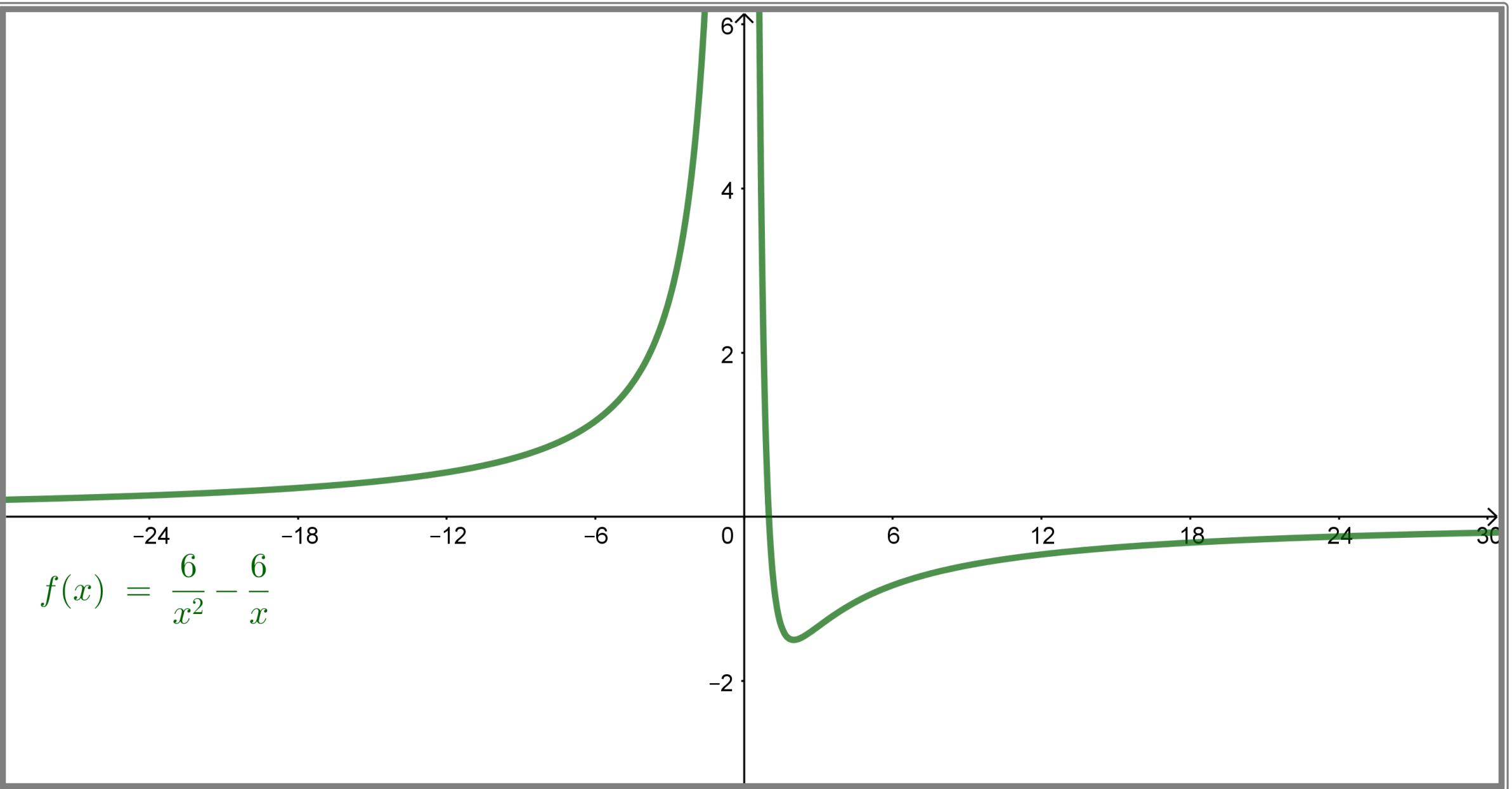


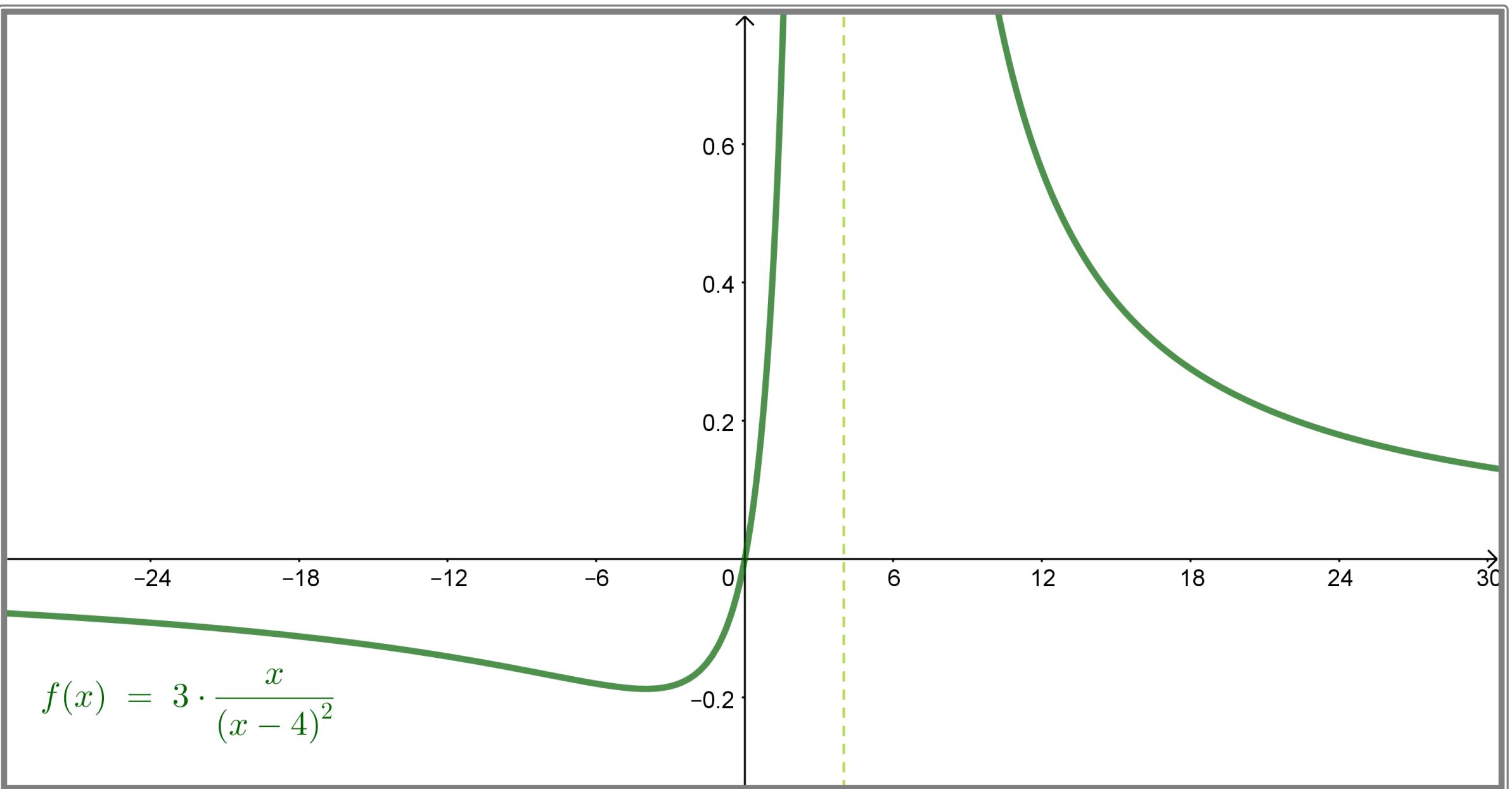
$$f(x) = \frac{x^3}{x - 3}$$

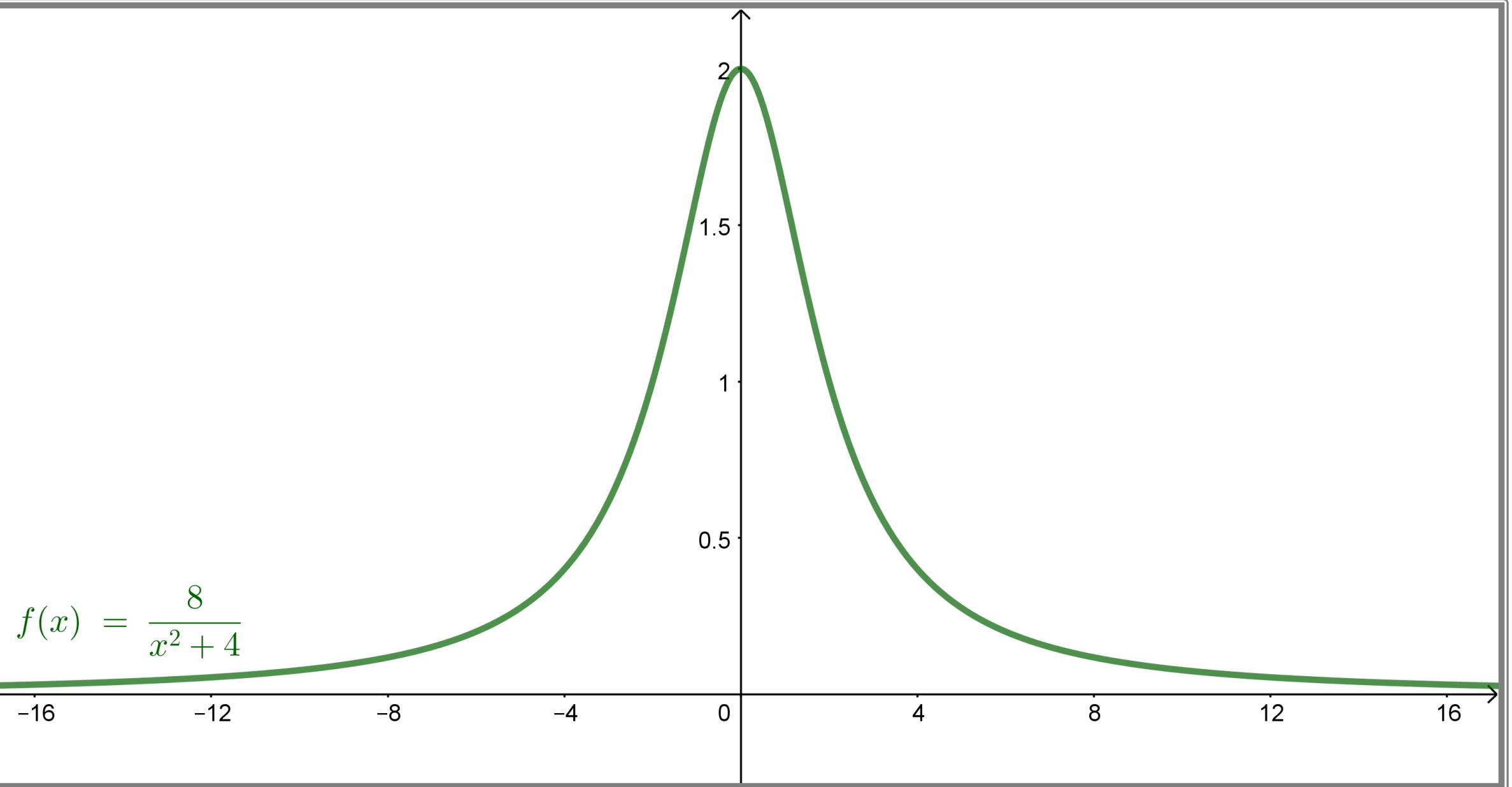




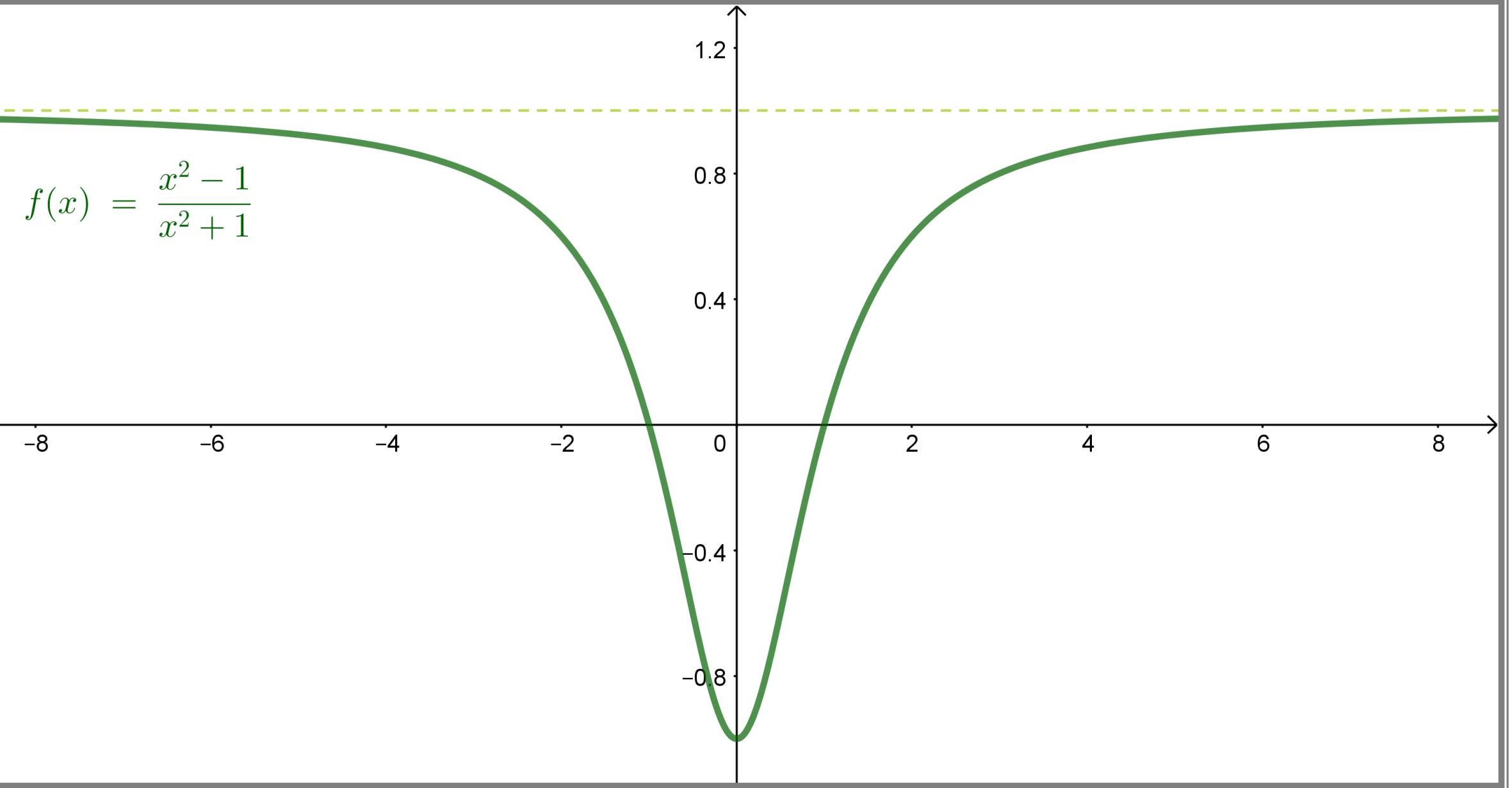


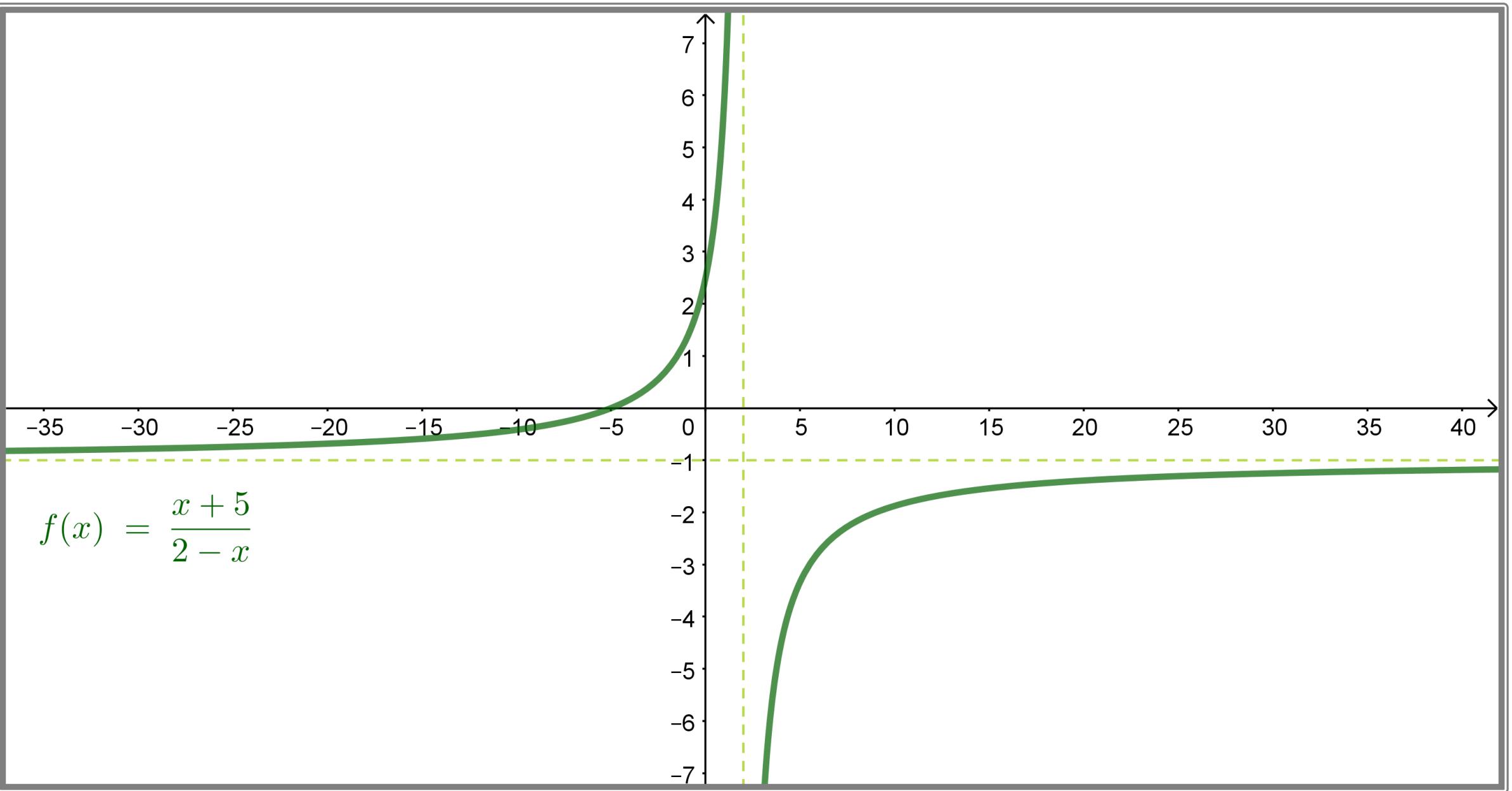


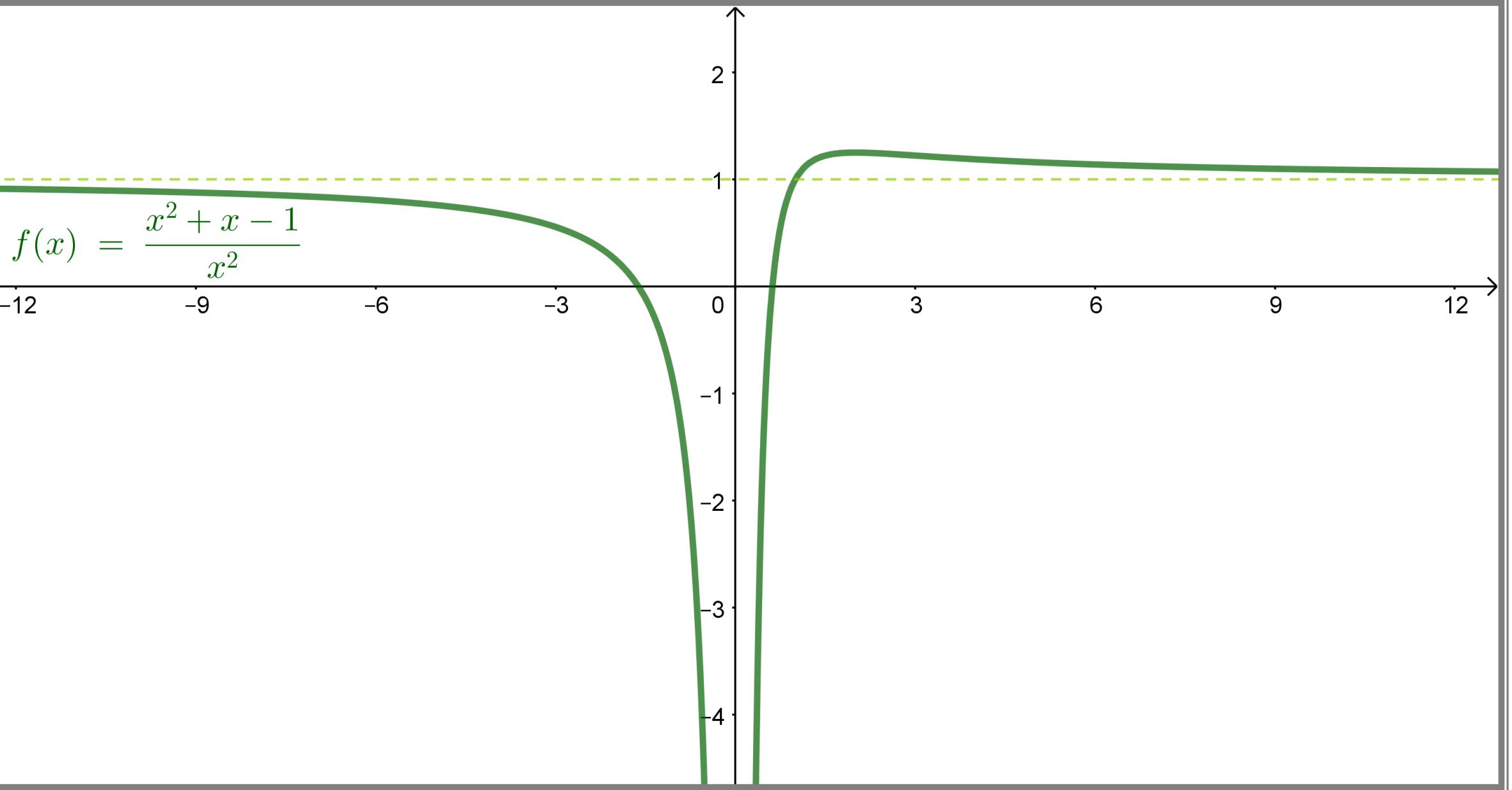




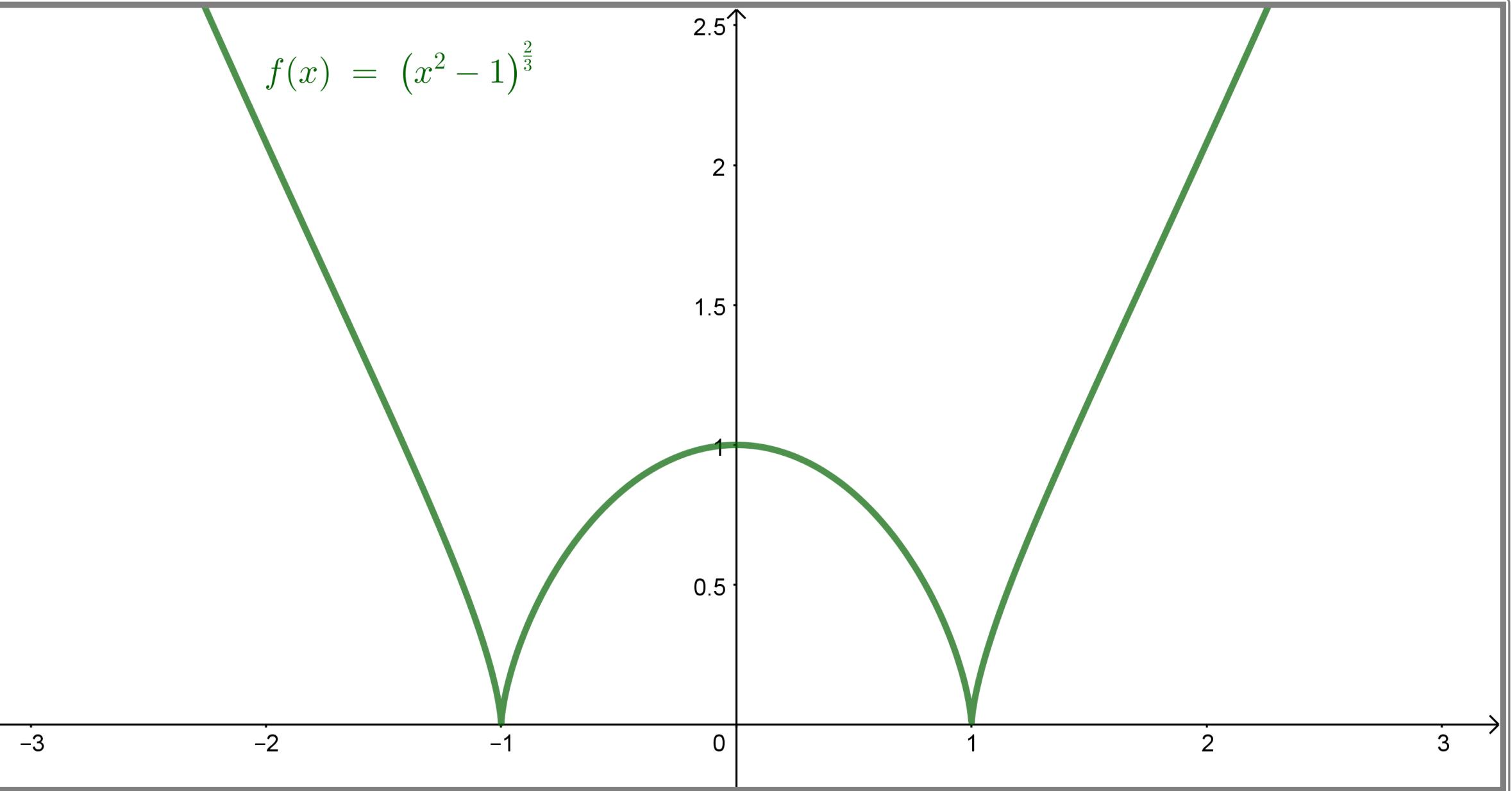
$$f(x) = \frac{x^2 - 1}{x^2 + 1}$$



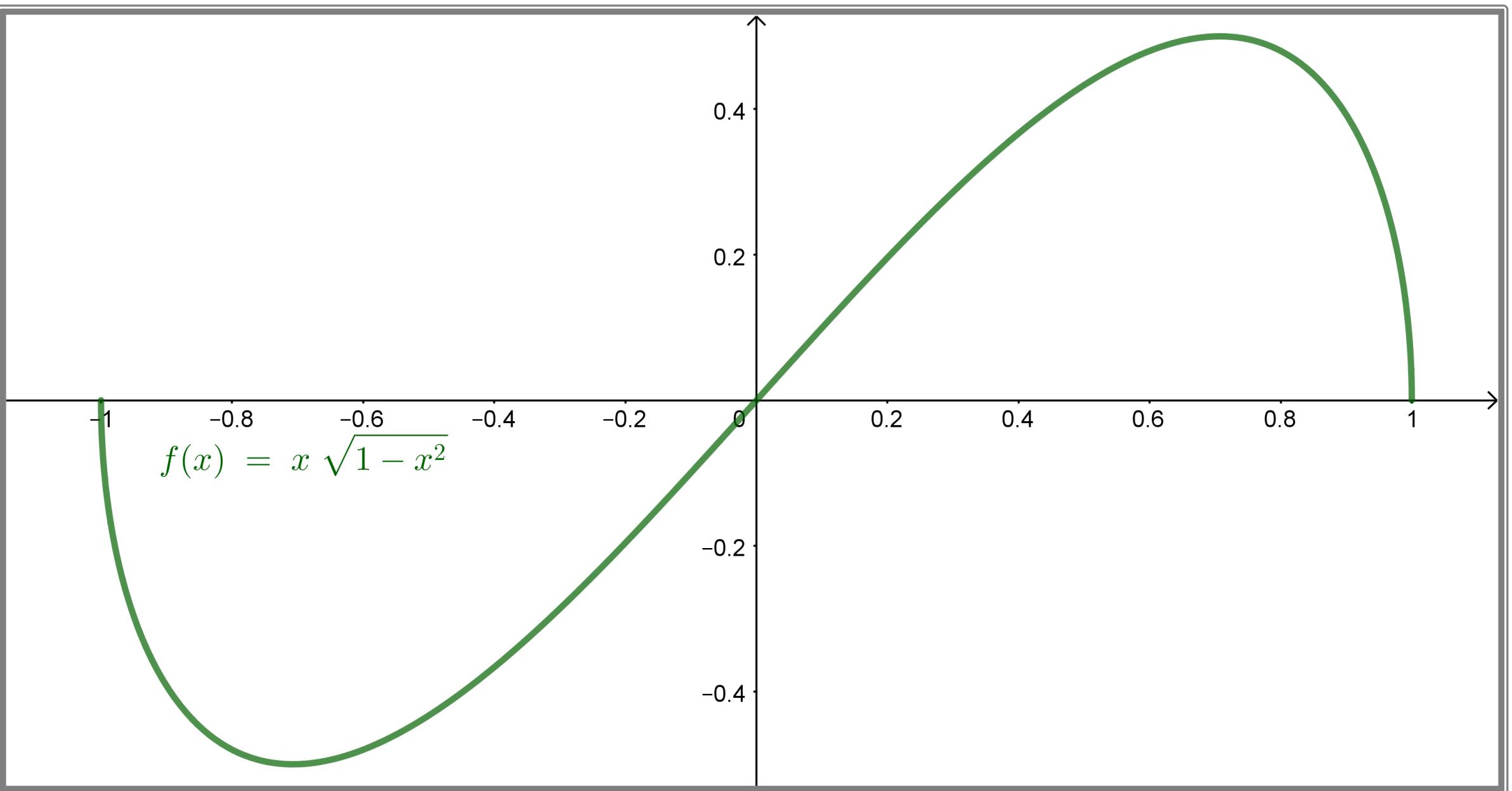




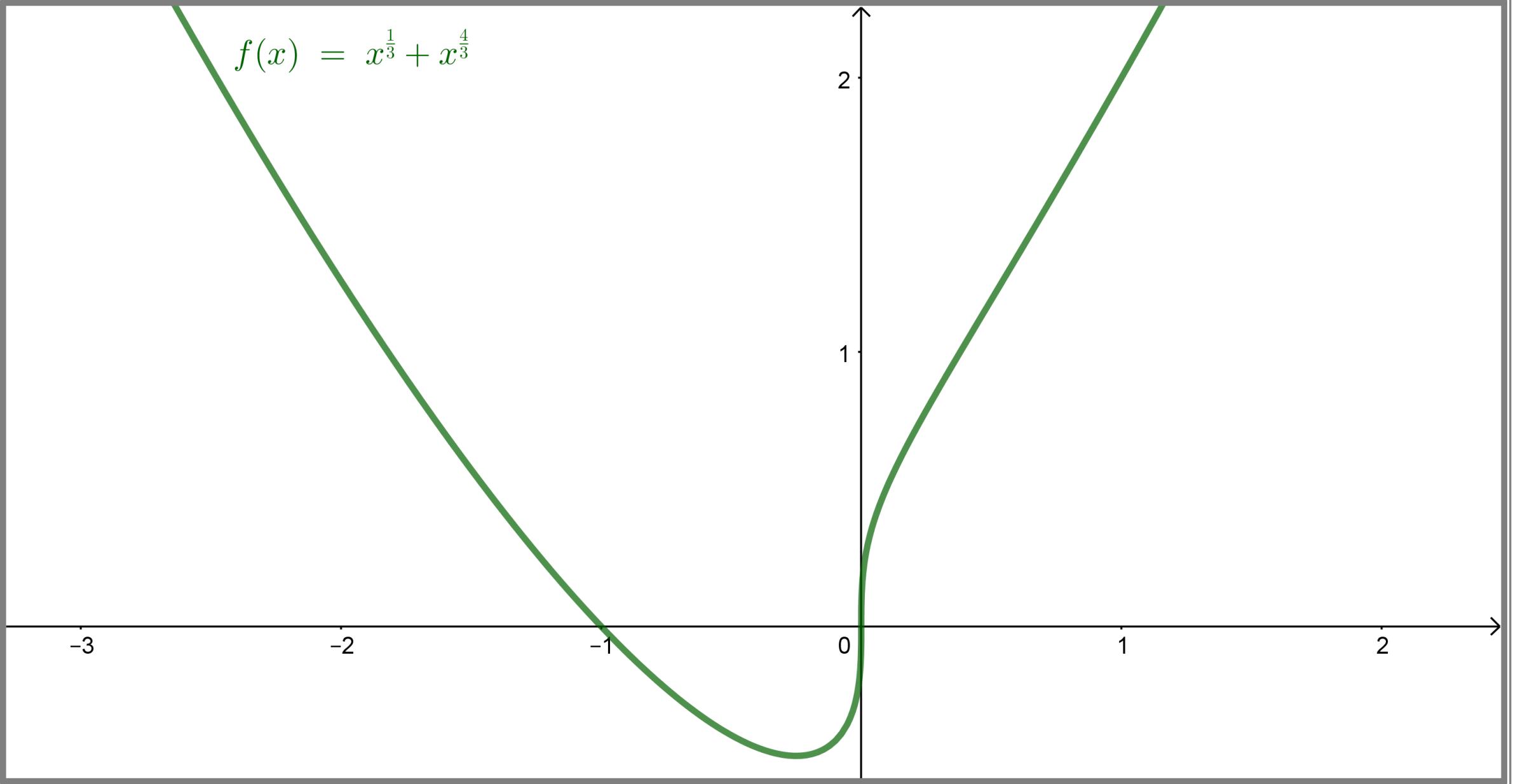
$$f(x) = (x^2 - 1)^{\frac{2}{3}}$$

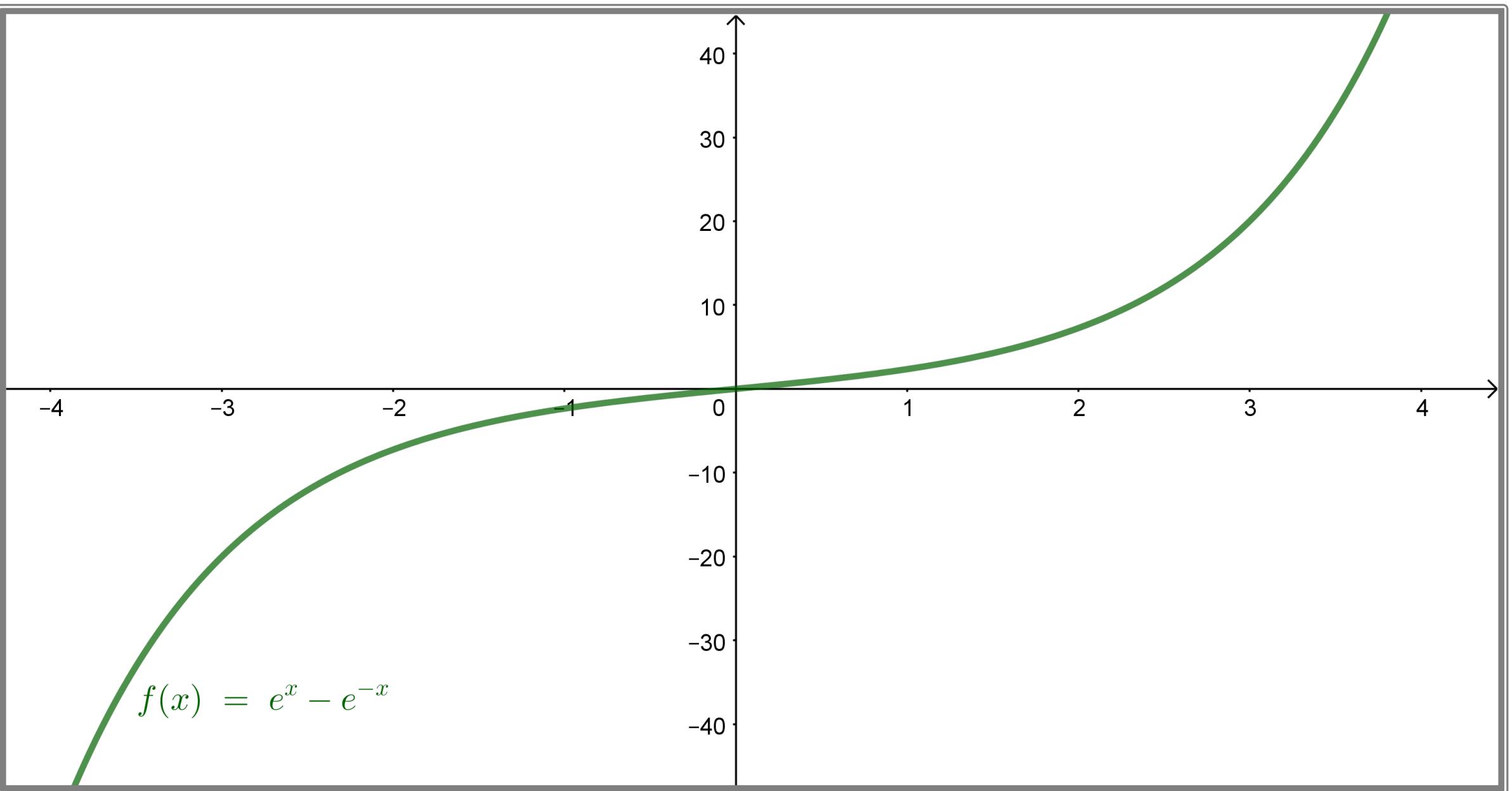


$$f(x) = x \sqrt{1 - x^2}$$



$$f(x) = x^{\frac{1}{3}} + x^{\frac{4}{3}}$$





$$f(x) = e^{-x^2}$$

-3

-2

-1

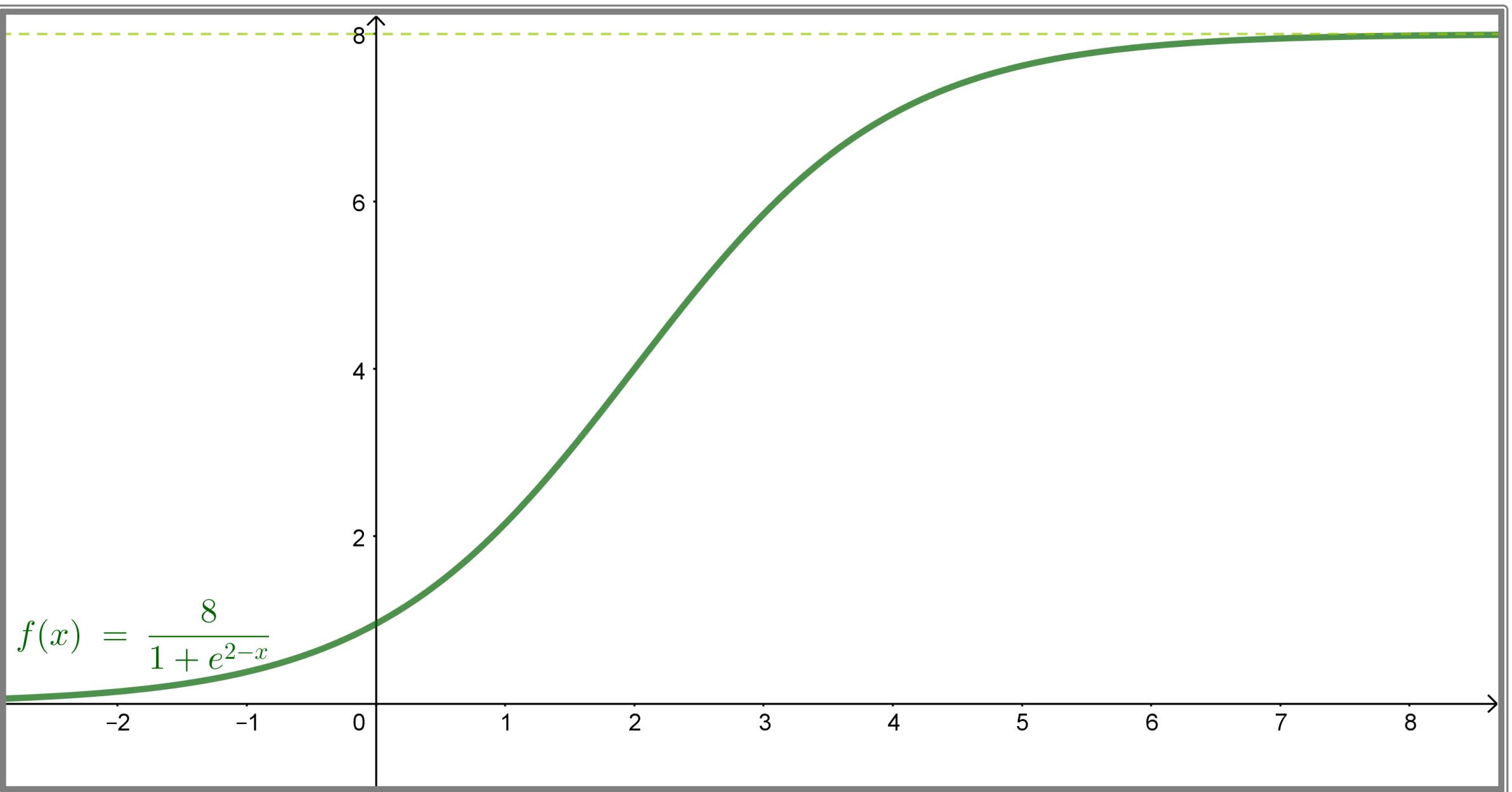
0

1

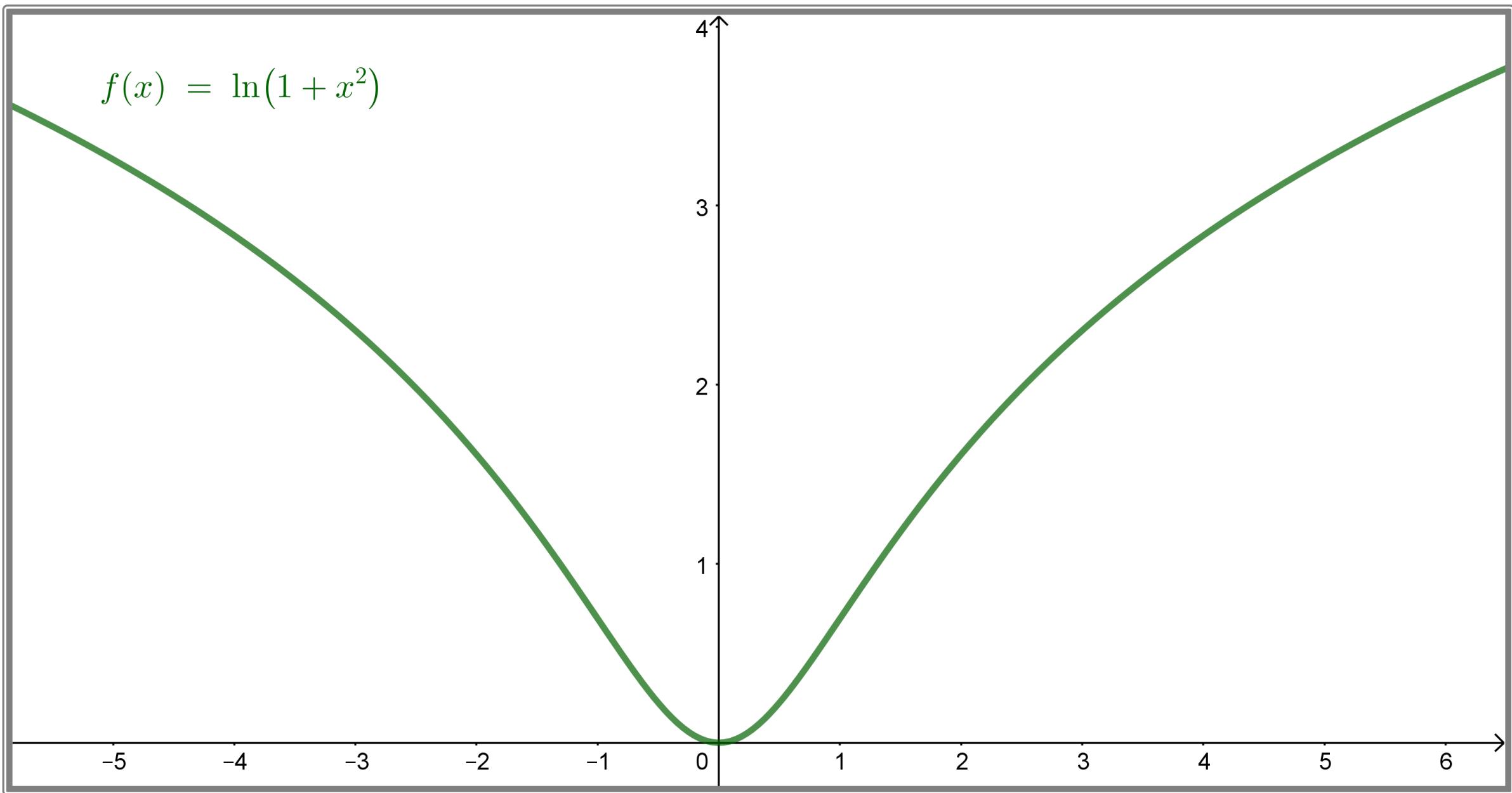
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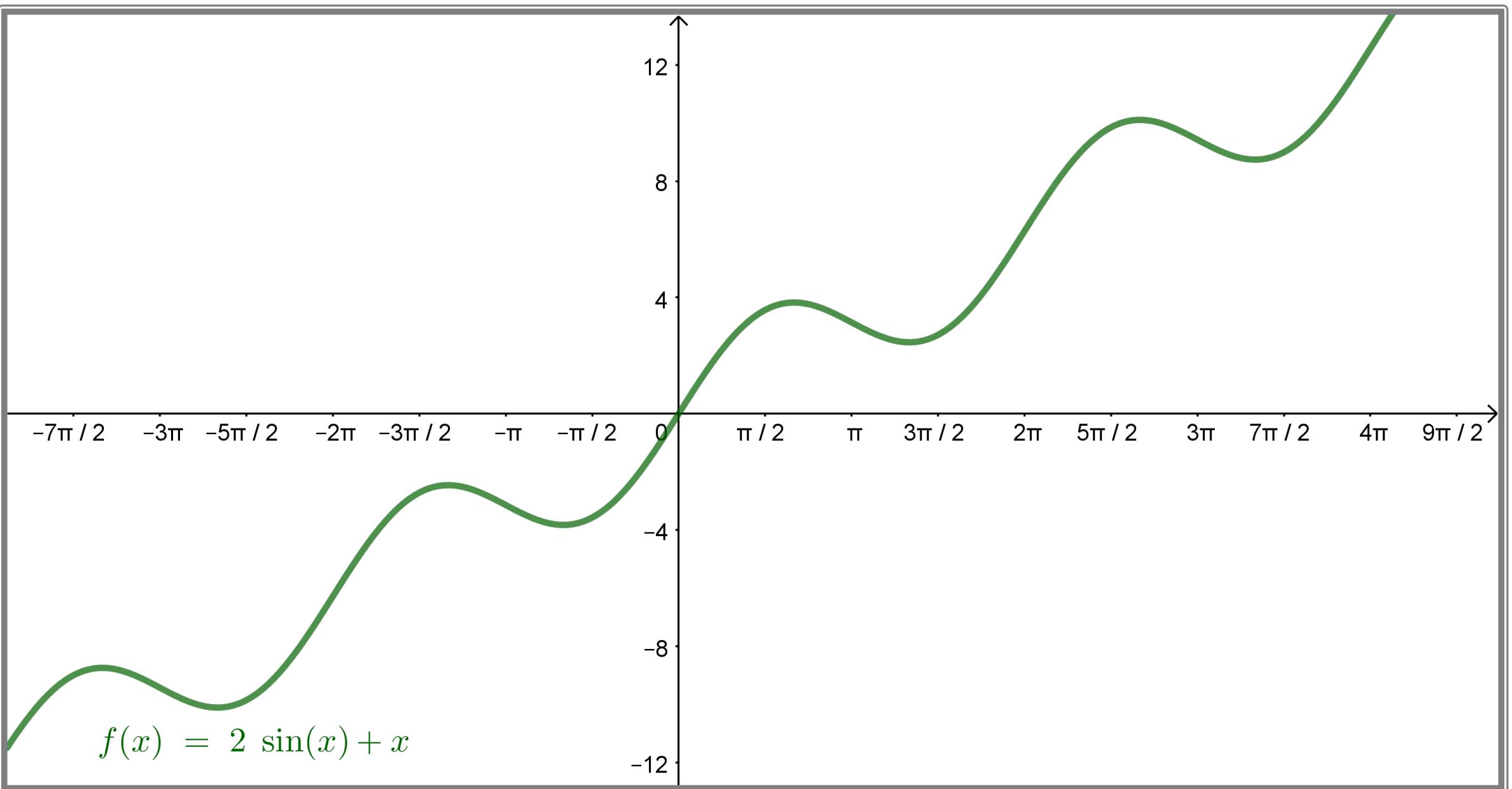
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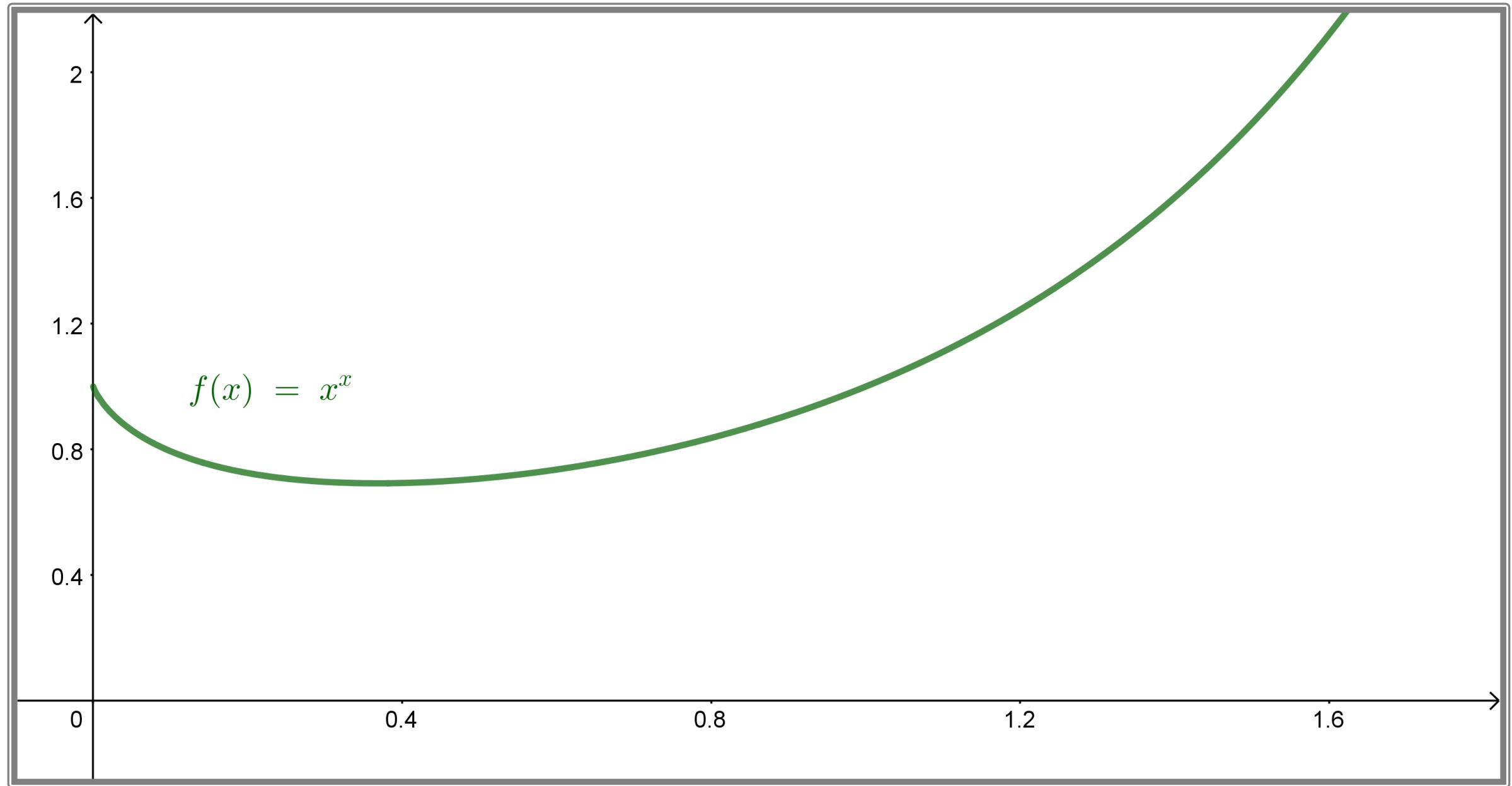




$$f(x) = \ln(1 + x^2)$$







## **Procédure en 6 étapes pour esquisser la courbe décrite par une fonction $f(x)$**

### **1. Détermination du domaine de $f(x)$ , de son ordonnée à l'origine et de ses zéros**

- Domaine de  $f$  : voir annexe A.12 et section 6.1.
- Ordonnée à l'origine de  $f$  : évaluer  $f(0)$ .
- Zéros de  $f$  : résoudre  $f(x) = 0$ .

### **2. Recherche des asymptotes horizontales et verticales**

- Asymptotes horizontales : voir sections 1.2.6 et 6.2.
- Asymptotes verticales : voir sections 1.2.4 et 6.2.

### **3. Détermination des valeurs critiques de $f(x)$**

- Voir section 5.1.

### **4. Détermination des valeurs critiques de $f'(x)$**

- Voir sections 5.1 et 6.4.

### **5. Construction du tableau des signes**

- Voir sections 5.1 et 6.4.

### **6. Esquisse de la courbe décrite par $f(x)$**

- Se baser sur les informations collectées aux étapes 1, 2 et 5.