

$$f := x \rightarrow (x - 1) \cdot (x + 1) \cdot (x - 3)$$

$$f := x \mapsto (x - 1) \cdot (x + 1) \cdot (x - 3) \quad (1)$$

$$fp := D(f)$$

$$fp := x \mapsto (x + 1) \cdot (x - 3) + (x - 1) \cdot (x - 3) + (x - 1) \cdot (x + 1) \quad (2)$$

$$expand(f(x))$$

$$x^3 - 3x^2 - x + 3 \quad (3)$$

$$f := x \rightarrow x^3 - 3x^2 - x + 3$$

$$f := x \mapsto x^3 - 3 \cdot x^2 - x + 3 \quad (4)$$

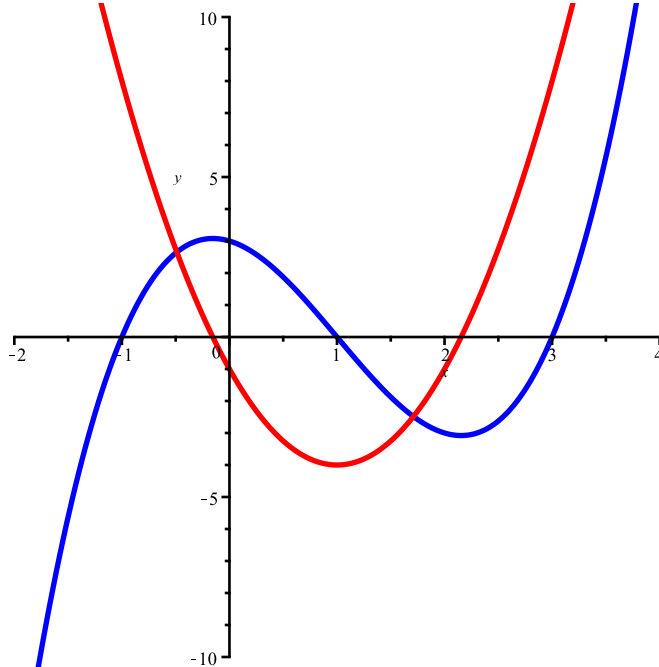
$$expand(fp(x))$$

$$3x^2 - 6x - 1 \quad (5)$$

$$fp := x \rightarrow 3x^2 - 6x - 1$$

$$fp := x \mapsto 3 \cdot x^2 - 6 \cdot x - 1 \quad (6)$$

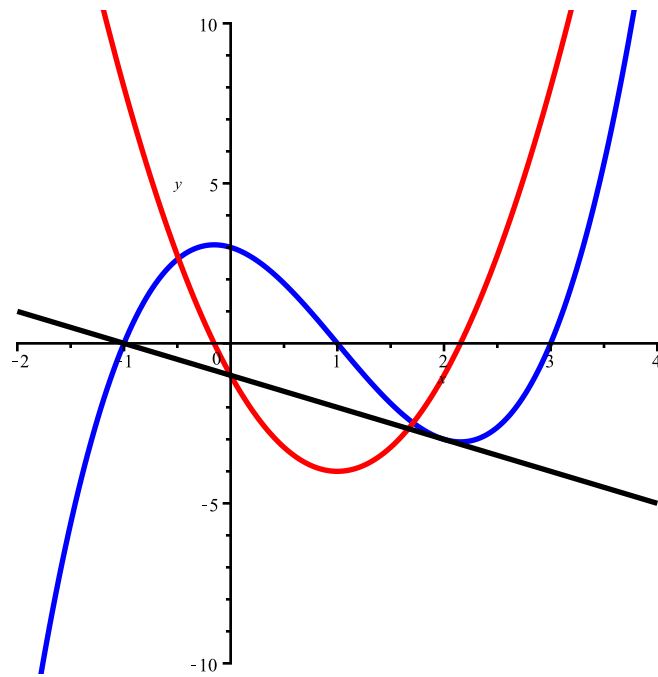
$$plot([f(x), fp(x)], x = -2..4, y = -10..10, color = [blue, red], thickness = 2)$$



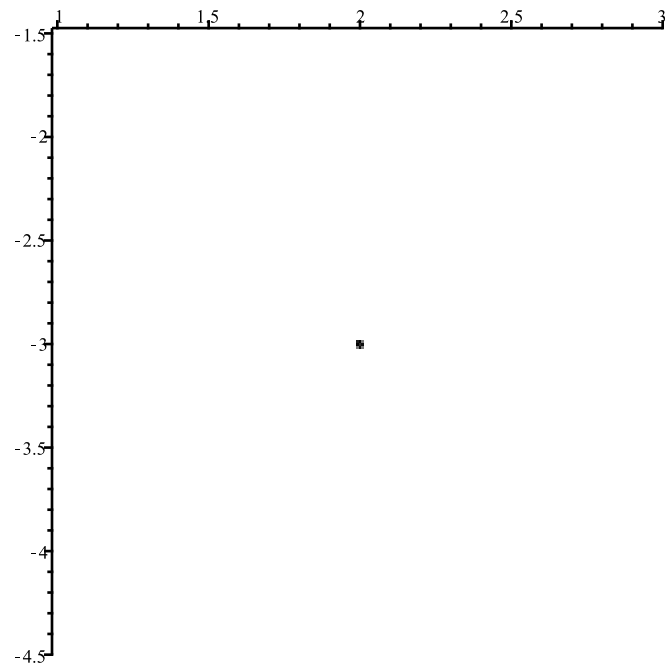
$$tanline := x \rightarrow fp(2) \cdot (x - 2) + f(2)$$

$$tanline := x \mapsto fp(2) \cdot (x - 2) + f(2) \quad (7)$$

$$plot([f(x), fp(x), tanline(x)], x = -2..4, y = -10..10, color = [blue, red, black], thickness = 2)$$

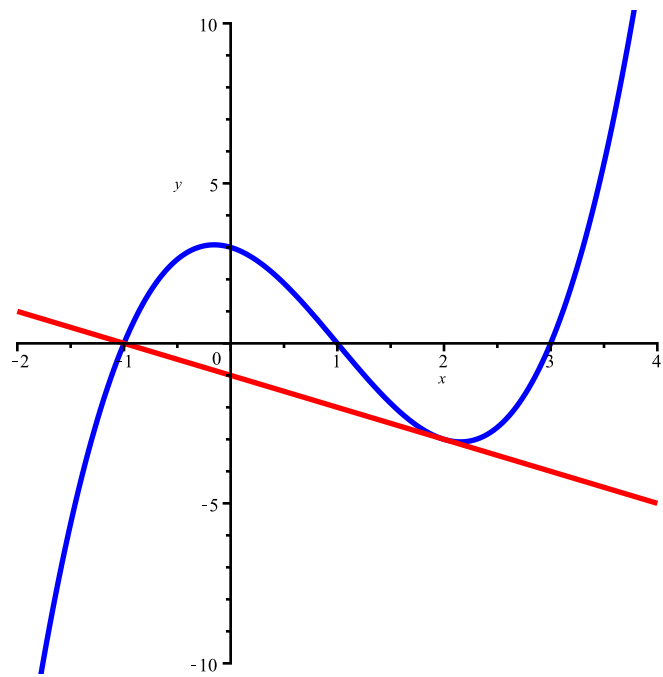


mypoint := pointplot([[2, f(2)]], symbol=solidcircle, symbolsize=10)



with(plots) :

myfuncandtanline := plot([f(x), tanline(x)], x=-2..4, y=-10..10, color=[blue, red], thickness=2)



`display([myfuncandtanline, mypoint])`

