

4A1

$N := 2001$

$n := 0..N$

$x_a := -4 - 0.0001$

$x_b := 4$

$x_n := x_a + \frac{x_b - x_a}{N} \cdot n$

$f(x) := x \cdot \ln(|x|)$

$ff_n := f(x_n)$

$df(x) := \frac{d}{dx} f(x)$

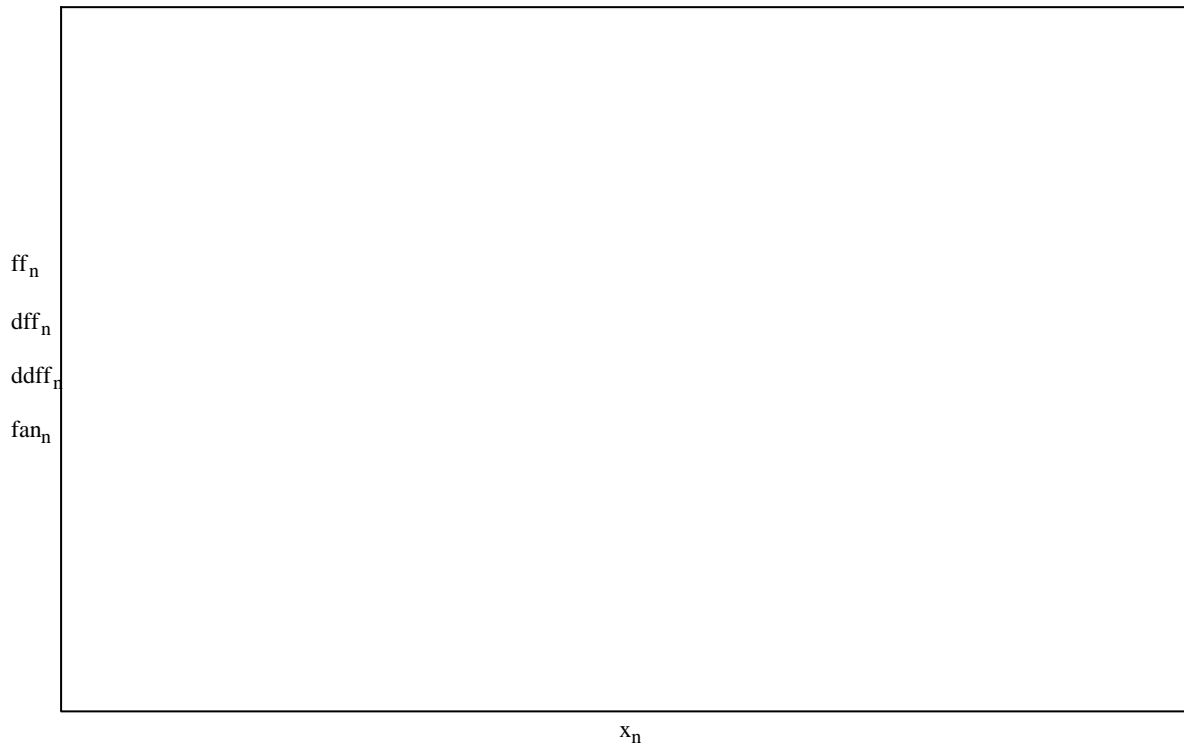
$dff_n := df(x_n)$

$ddf(x) := \frac{d^2}{dx^2} f(x)$

$ddff_n := ddf(x_n)$

$fa(x) := x - 1$

$fan_n := fa(x_n)$



$s1 := 1 \quad t1 := \text{Maximize}(f, s1) \quad t1 =$

$f(t1) =$

$s2 := 2.1 \quad t2 := \text{Minimize}(f, s1) \quad t2 =$

$f(t2) =$

$\text{Given} \quad df(x) = 0$

$\text{Find}(x) \rightarrow =$

$\text{Given} \quad ddf(x) = 0$

$\text{Find}(x) \rightarrow =$

4A2

$N := 2001$

$n := 0..N$

$xa := -4 - 0.0001 \quad xb := 4$

$x_n := xa + \frac{xb - xa}{N} \cdot n$

$f(x) := x^2 \cdot \ln(|x|)$

$ff_n := f(x_n)$

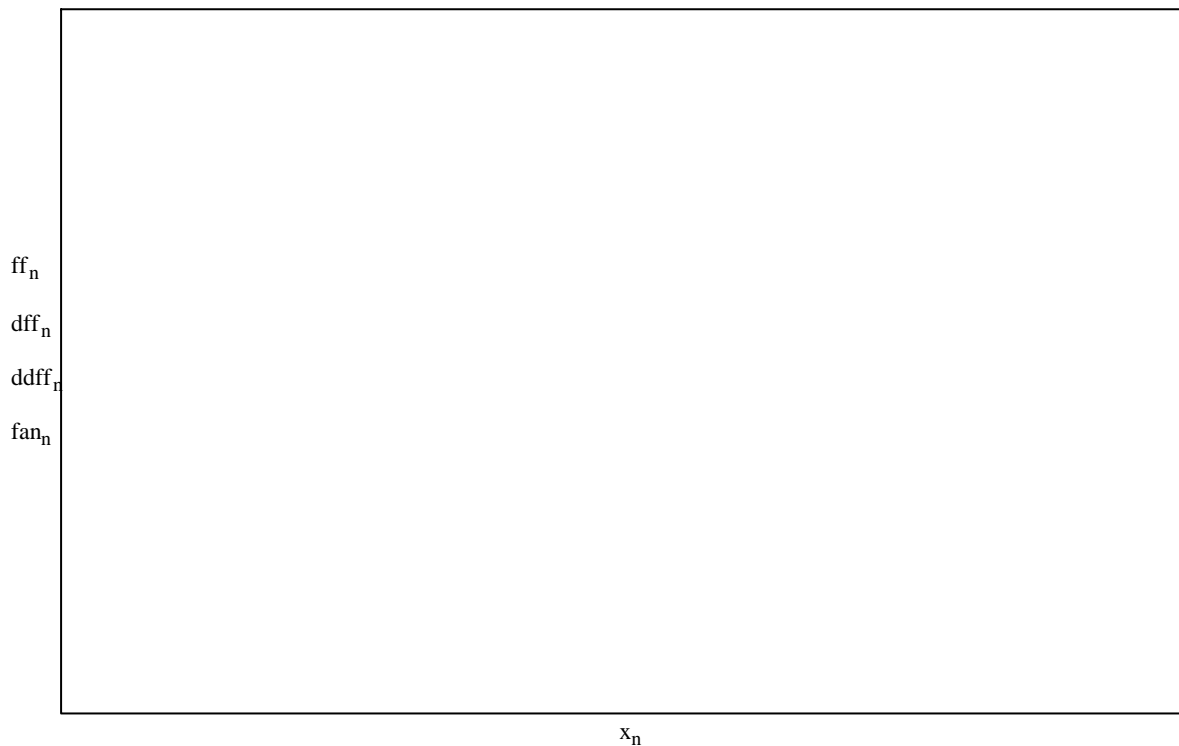
$df(x) := \frac{d}{dx} f(x)$

$dff_n := df(x_n)$

$ddf(x) := \frac{d^2}{dx^2} f(x) \quad dddf_n := ddf(x_n)$

$fa(x) := x - 1$

$fan_n := fa(x_n)$



$s1 := 1 \quad t1 := \text{Maximize}(f, s1) \quad t1 =$

$f(t1) =$

$s2 := 2.1 \quad t2 := \text{Minimize}(f, s1) \quad t2 =$

$f(t2) =$

$\text{Given} \quad df(x) = 0$

$\text{Find}(x) \rightarrow =$

$\text{Given} \quad ddf(x) = 0$

$\text{Find}(x) \rightarrow =$

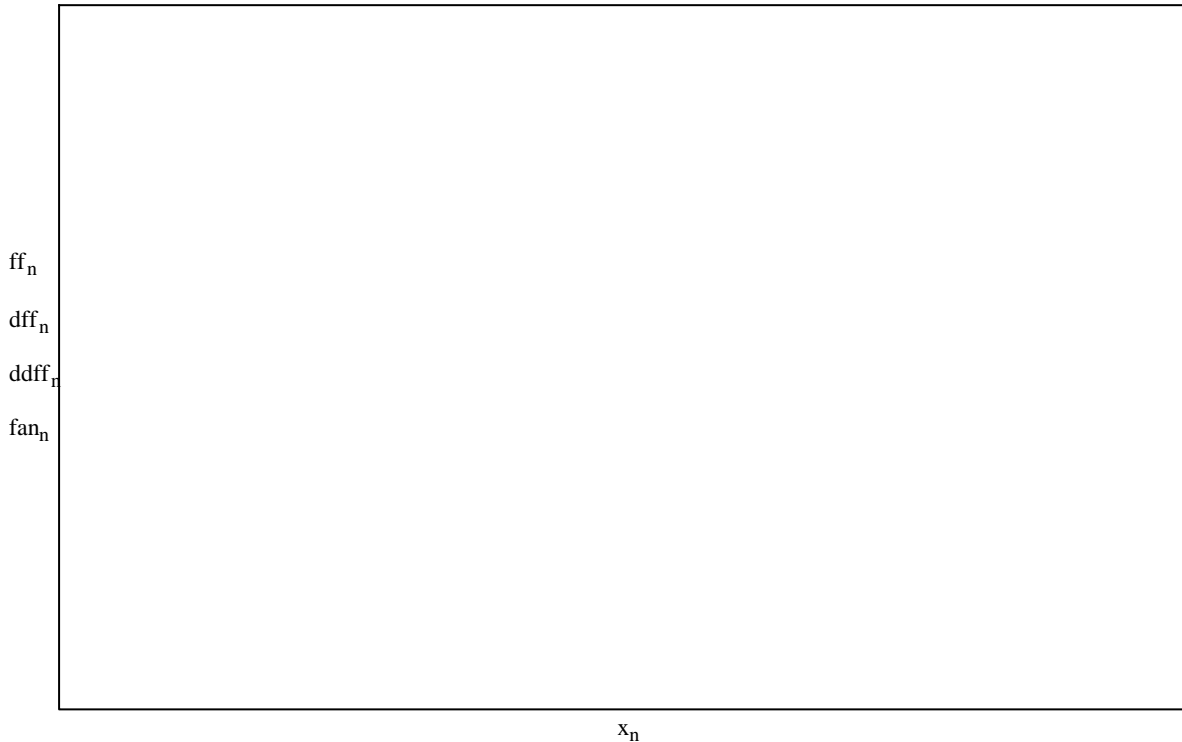
4A3

$$N := 2001 \quad n := 0..N \quad x_a := -3 - 0.0001 \quad x_b := 3 \quad x_n := x_a + \frac{x_b - x_a}{N} \cdot n$$

$$f(x) := x^3 \cdot \ln(|x|) \quad ff_n := f(x_n)$$

$$df(x) := \frac{d}{dx} f(x) \quad dff_n := df(x_n) \quad ddf(x) := \frac{d^2}{dx^2} f(x) \quad dddf_n := ddf(x_n)$$

$$fa(x) := x - 1 \quad fan_n := fa(x_n)$$



$$s1 := 1 \quad t1 := \text{Maximize}(f, s1) \quad t1 = \quad f(t1) =$$

$$s2 := 2.1 \quad t2 := \text{Minimize}(f, s1) \quad t2 = \quad f(t2) =$$

$$\text{Given} \quad df(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

$$\text{Given} \quad ddf(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

4A4

$N := 2001$

$n := 0..N$

$x_a := -4 - 0.00 \cdot x_b := 4$

$x_n := x_a + \frac{x_b - x_a}{N} \cdot n$

$f(x) := x \cdot \ln(|x|)^2$

$ff_n := f(x_n)$

$df(x) := \frac{d}{dx} f(x)$

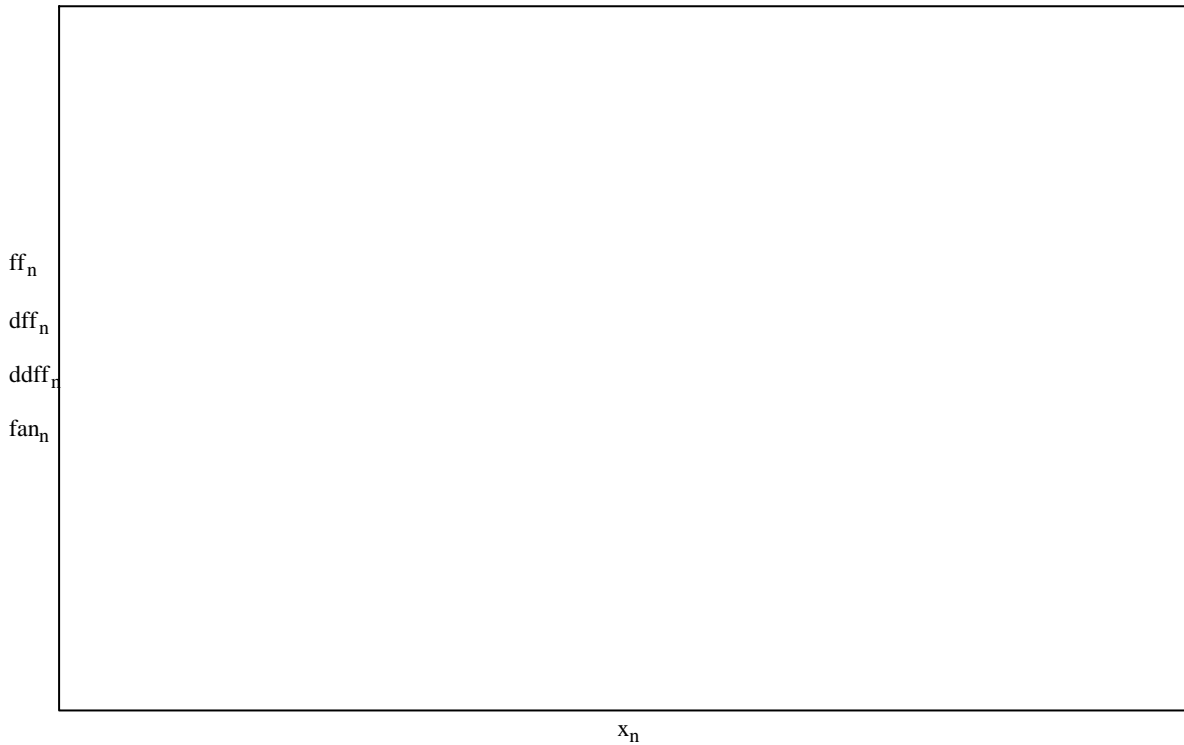
$dff_n := df(x_n)$

$ddf(x) := \frac{d^2}{dx^2} f(x)$

$ddff_n := ddf(x_n)$

$fa(x) := x - 1$

$fan_n := fa(x_n)$



$s1 := \frac{1}{2}$

$t1 := \text{Maximize}(f, s1) \quad t1 =$

$f(t1) =$

$s2 := 2.1$

$t2 := \text{Minimize}(f, s1) \quad t2 =$

$f(t2) =$

Given $df(x) = 0$

$\text{Find}(x) \rightarrow =$

Given $ddf(x) = 0$

$\text{Find}(x) \rightarrow =$

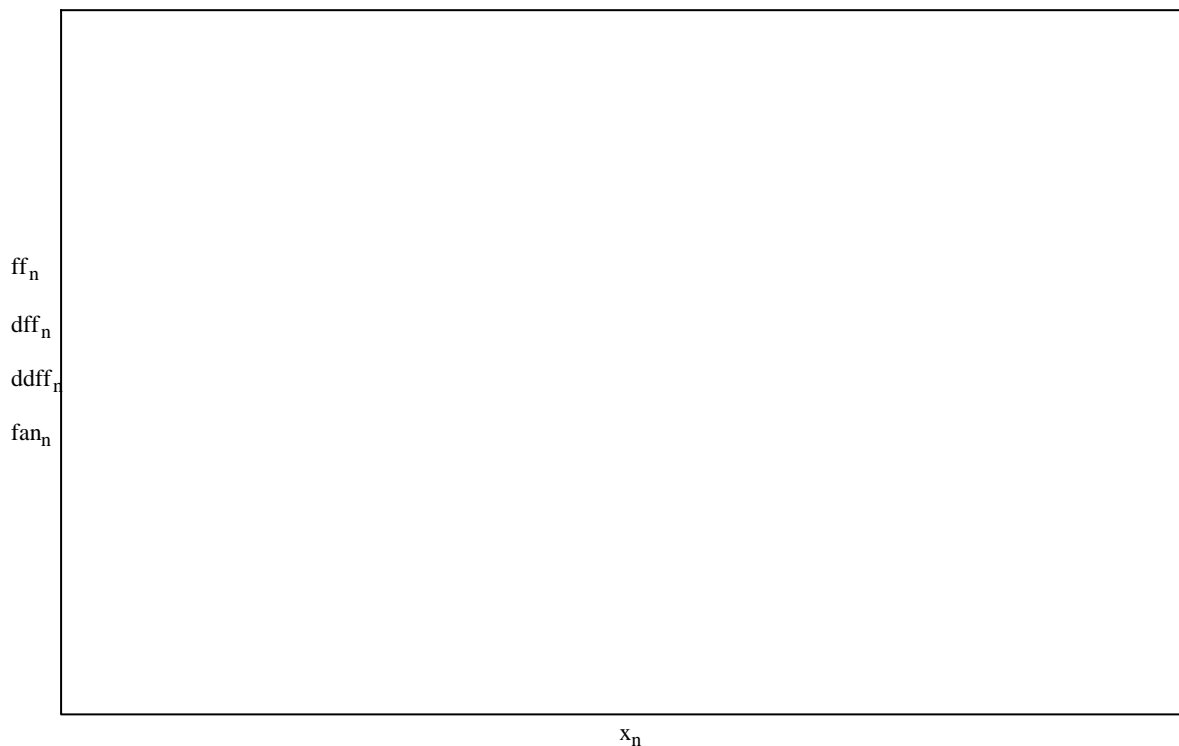
4A5

$$N := 2001 \quad n := 0..N \quad x_a := -3 - 0.0001 \quad x_b := 3 \quad x_n := x_a + \frac{x_b - x_a}{N} \cdot n$$

$$f(x) := x \cdot \ln(|x|)^3 \quad ff_n := f(x_n)$$

$$df(x) := \frac{d}{dx} f(x) \quad dff_n := df(x_n) \quad ddf(x) := \frac{d^2}{dx^2} f(x) \quad dddf_n := ddf(x_n)$$

$$fa(x) := x - 1 \quad fan_n := fa(x_n)$$



$$s1 := 1 \quad t1 := \text{Maximize}(f, s1) \quad t1 = \quad f(t1) =$$

$$s2 := 2.1 \quad t2 := \text{Minimize}(f, s2) \quad t2 = \quad f(t2) =$$

$$\text{Given} \quad df(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

$$\text{Given} \quad ddf(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

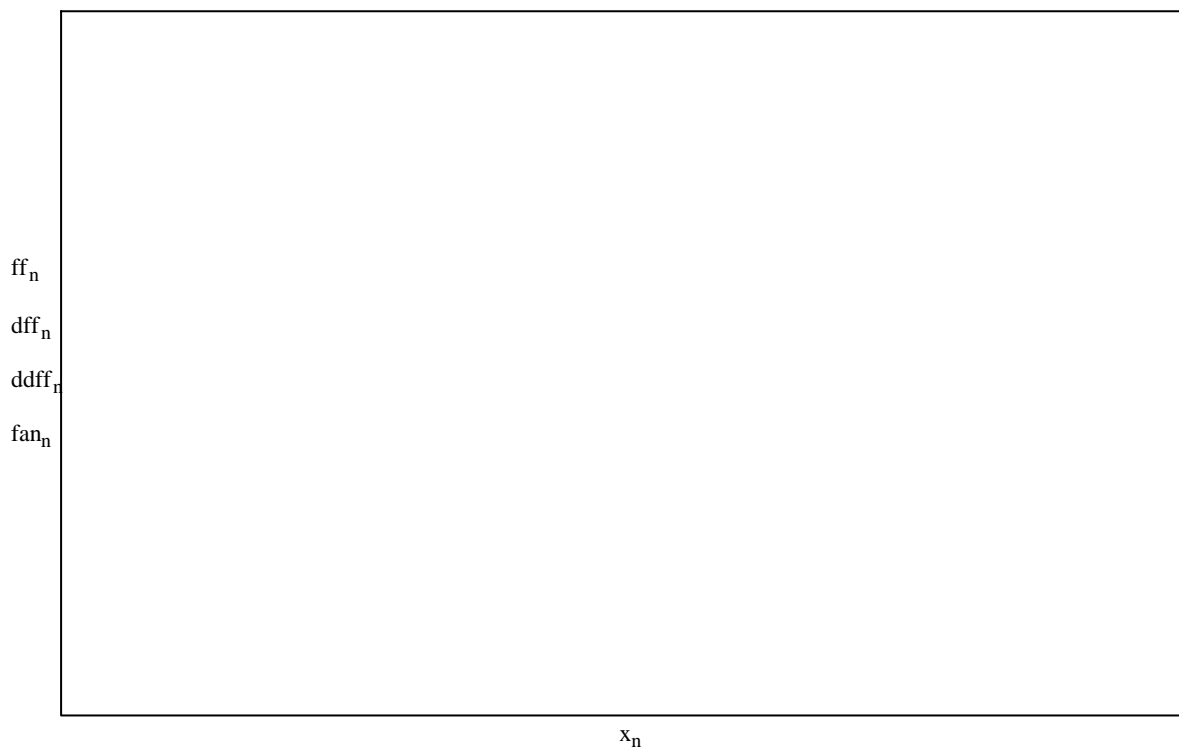
4A6

$$N := 2001 \quad n := 0..N \quad x_a := -5.0001 \quad x_b := 5 \quad x_n := x_a + \frac{x_b - x_a}{N} \cdot n$$

$$f(x) := \frac{x}{\ln(|x|)} \quad ff_n := f(x_n)$$

$$df(x) := \frac{d}{dx} f(x) \quad dff_n := df(x_n) \quad ddf(x) := \frac{d^2}{dx^2} f(x) \quad dddf_n := ddf(x_n)$$

$$fa(x) := x - 1 \quad fan_n := fa(x_n)$$



$$s1 := 1 \quad t1 := \text{Maximize}(f, s1) \quad t1 = \quad f(t1) =$$

$$s2 := 2.1 \quad t2 := \text{Minimize}(f, s2) \quad t2 = \quad f(t2) =$$

$$\text{Given} \quad df(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

$$\text{Given} \quad ddf(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

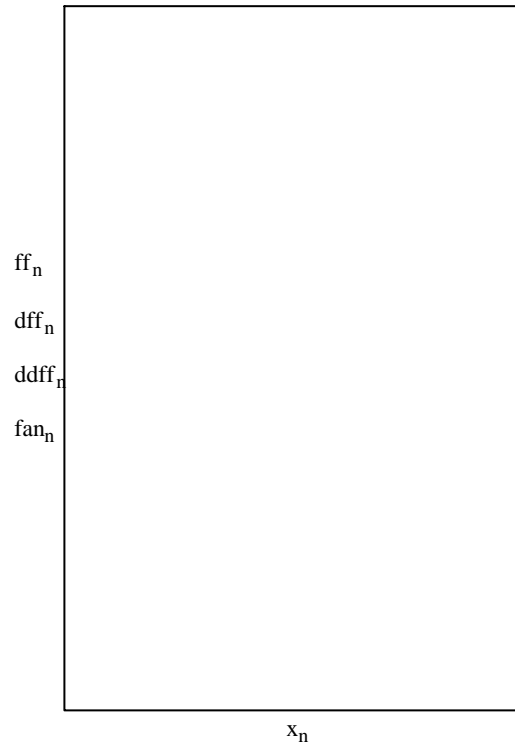
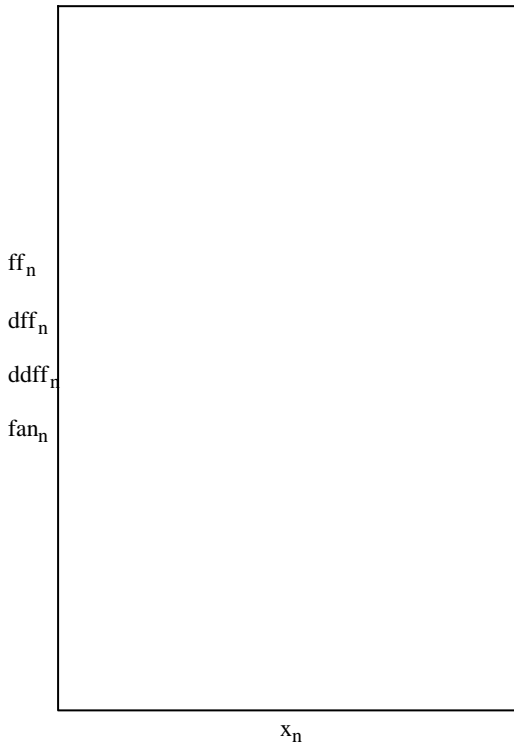
4A7

$$N := 4001 \quad n := 0..N \quad xa := 0.0001 \quad xb := 50 \quad x_n := xa + \frac{xb - xa}{N} \cdot n$$

$$f(x) := \frac{\sqrt{x}}{\ln(x)} \quad ff_n := f(x_n)$$

$$df(x) := \frac{d}{dx}f(x) \quad dff_n := df(x_n) \quad ddf(x) := \frac{d^2}{dx^2}f(x) \quad dddf_n := ddf(x_n)$$

$$fa(x) := x - 1 \quad fan_n := fa(x_n)$$



$$s1 := 1 \quad t1 := \text{Maximize}(f, s1) \quad t1 = \quad f(t1) =$$

$$s2 := 2.1 \quad t2 := \text{Minimize}(f, s2) \quad t2 = \quad f(t2) =$$

$$\text{Given} \quad df(x) = 0 \quad \text{Find}(x) \rightarrow =$$

$$\text{Given} \quad ddf(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

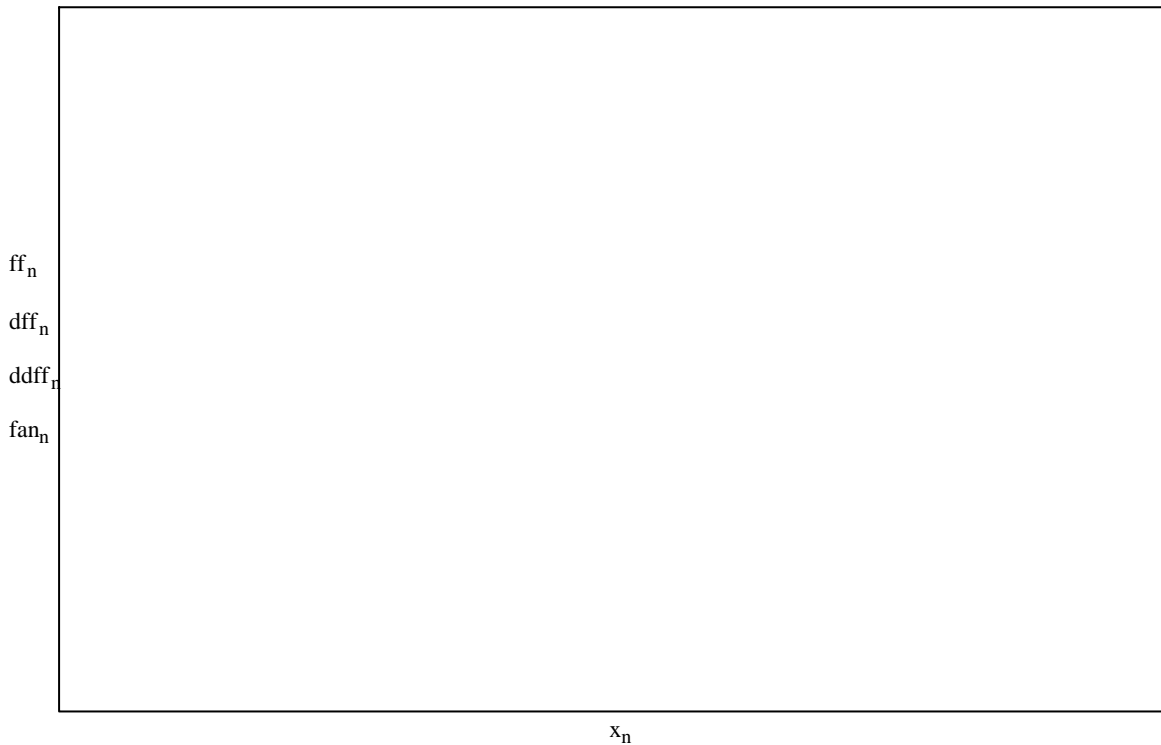
4A8

$$N := 4001 \quad n := 0..N \quad x_a := 0.0001 \quad x_b := 50 \quad x_n := x_a + \frac{x_b - x_a}{N} \cdot n$$

$$f(x) := \frac{\ln(x)}{x} \quad ff_n := f(x_n)$$

$$df(x) := \frac{d}{dx}f(x) \quad dff_n := df(x_n) \quad ddf(x) := \frac{d^2}{dx^2}f(x) \quad dddf_n := ddf(x_n)$$

$$fa(x) := x - 1 \quad fan_n := fa(x_n)$$



$$s1 := 1 \quad t1 := \text{Maximize}(f, s1) \quad t1 = \quad f(t1) =$$

$$s2 := 2.1 \quad t2 := \text{Minimize}(f, s1) \quad t2 = \quad f(t2) =$$

$$\text{Given} \quad df(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

$$\text{Given} \quad ddf(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

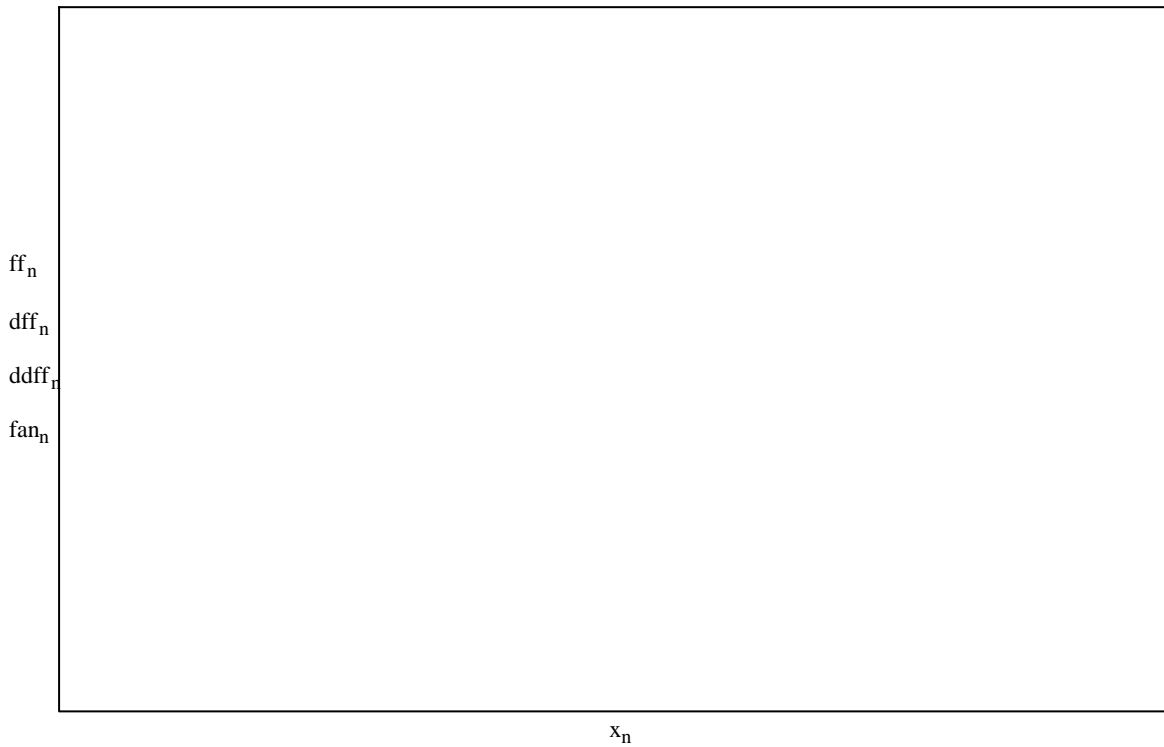
4A9

$$N := 4001 \quad n := 0..N \quad x_a := 0.0001 \quad x_b := 50 \quad x_n := x_a + \frac{x_b - x_a}{N} \cdot n$$

$$f(x) := \frac{\ln(x)^2}{x} \quad ff_n := f(x_n)$$

$$df(x) := \frac{d}{dx}f(x) \quad dff_n := df(x_n) \quad ddf(x) := \frac{d^2}{dx^2}f(x) \quad dddf_n := ddf(x_n)$$

$$fa(x) := x - 1 \quad fan_n := fa(x_n)$$



$$s1 := 3 \quad t1 := \text{Maximize}(f, s1) \quad t1 = \quad f(t1) =$$

$$s2 := 2.1 \quad t2 := \text{Minimize}(f, s1) \quad t2 = \quad f(t2) =$$

$$\text{Given} \quad df(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

$$\text{Given} \quad ddf(x) = 0$$

$$\text{Find}(x) \rightarrow =$$

4A10

$N := 4001$

$n := 0..N$

$x_a := 0.0001$

$x_b := 50$

$x_n := x_a + \frac{x_b - x_a}{N} \cdot n$

$f(x) := \frac{\ln(x)}{x^2}$

$ff_n := f(x_n)$

$df(x) := \frac{d}{dx}f(x)$

$dff_n := df(x_n)$

$ddf(x) := \frac{d^2}{dx^2}f(x)$

$ddff_n := ddf(x_n)$

$fa(x) := x - 1$

$fan_n := fa(x_n)$



$s1 := 3 \quad t1 := \text{Maximize}(f, s1) \quad t1 =$

$f(t1) =$

$s2 := 2.1 \quad t2 := \text{Minimize}(f, s1) \quad t2 =$

$f(t2) =$

Given $df(x) = 0$

$\text{Find}(x) \rightarrow =$

Given $ddf(x) = 0$

$\text{Find}(x) \rightarrow =$