Derivacija funkcije – 1. dio

Matematika 2

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FOI, Varaždin

Sadržaj

prvi zadatak

Zadatak 1

Odredite derivacije funkcija $f(x) = \sqrt[5]{x^2}$ *i* $g(x) = \left(\frac{2}{5}\right)^x$.

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drugi zadatak

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$$= \frac{3}{5} \cdot 3x^2 - \frac{7}{5} \cdot 2x$$

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$$= \frac{3}{5} \cdot 3x^2 - \frac{7}{5} \cdot 2x + \frac{9}{5} \cdot 1 = \frac{9}{5}x^2 - \frac{14}{5}x + \frac{9}{5}$$

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treći zadatak

Zadatak 3

Odredite derivaciju funkcije $y = \dfrac{4x^2}{3\sqrt[7]{x^4}}$.

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$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

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$$y = \frac{4x^2}{3\sqrt[7]{x^4}}$$

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Rješenje

$$y = \frac{4x^2}{3\sqrt[7]{x^4}} = \frac{4x^2}{3x^{\frac{4}{7}}}$$

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Rješenje

$$y = \frac{4x^2}{3\sqrt[7]{x^4}} = \frac{4x^2}{3x^{\frac{4}{7}}} = \frac{4}{3}x^{2-\frac{4}{7}}$$

$$y = \frac{4}{3}x^{\frac{10}{7}}$$

$$y' =$$

Zadatak 3

$$\frac{x^n}{x^m} = x^{n-m}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Odredite derivaciju funkcije $y = \dfrac{4x^2}{3\sqrt[7]{x^4}}$.

$$(cu)'(x) = c \cdot u'(x)$$

Rješenje

$$y = \frac{4x^2}{3\sqrt[7]{x^4}} = \frac{4x^2}{3x^{\frac{4}{7}}} = \frac{4}{3}x^{2-\frac{4}{7}}$$

$$y = \frac{4}{3}x^{\frac{10}{7}}$$

$$y' = \frac{4}{3}\,.$$

Zadatak 3

$$\frac{x^n}{x^m} = x^{n-m}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Odredite derivaciju funkcije $y = \dfrac{4x^2}{3\sqrt[7]{x^4}}$.

$$(cu)'(x) = c \cdot u'(x)$$

Rješenje

$$(x^n)' = nx^{n-1}$$

$$y = \frac{4x^2}{3\sqrt[7]{x^4}} = \frac{4x^2}{3x^{\frac{4}{7}}} = \frac{4}{3}x^{2-\frac{4}{7}}$$

$$y = \frac{4}{3}x^{\frac{10}{7}}$$

$$y' = \frac{4}{3} \cdot \left(x^{\frac{10}{7}}\right)'$$

Zadatak 3

$$\frac{x^n}{x^m} = x^{n-m}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Odredite derivaciju funkcije $y = \dfrac{4x^2}{3\sqrt[7]{x^4}}$.

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$$y = \frac{4}{3}x^{\frac{10}{7}}$$

$$y' = \frac{4}{3} \cdot \left(x^{\frac{10}{7}}\right)' = \frac{4}{3} \cdot$$

Zadatak 3

$$\frac{x^n}{x^m} = x^{n-m}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Odredite derivaciju funkcije $y = \dfrac{4x^2}{3\sqrt[7]{x^4}}$.

$$(cu)'(x) = c \cdot u'(x)$$

Rješenje

$$(x^n)' = nx^{n-1}$$

$$y = \frac{4x^2}{3\sqrt[7]{x^4}} = \frac{4x^2}{3x^{\frac{4}{7}}} = \frac{4}{3}x^{2-\frac{4}{7}}$$

$$y = \frac{4}{3}x^{\frac{10}{7}}$$

$$y' = \frac{4}{3} \cdot \left(x^{\frac{10}{7}}\right)' = \frac{4}{3} \cdot \frac{10}{7}x^{\frac{10}{7}-1}$$

Zadatak 3

$$\frac{x^n}{x^m} = x^{n-m}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Odredite derivaciju funkcije $y = \dfrac{4x^2}{3\sqrt[7]{x^4}}$.

$$(cu)'(x) = c \cdot u'(x)$$

Rješenje

$$(x^n)' = nx^{n-1}$$

$$y = \frac{4x^2}{3\sqrt[7]{x^4}} = \frac{4x^2}{3x^{\frac{4}{7}}} = \frac{4}{3}x^{2-\frac{4}{7}}$$

$$y = \frac{4}{3}x^{\frac{10}{7}}$$

$$y' = \frac{4}{3} \cdot \left(x^{\frac{10}{7}}\right)' = \frac{4}{3} \cdot \frac{10}{7}x^{\frac{10}{7}-1}$$

$$y' = \frac{40}{21}x^{\frac{3}{7}}$$

Zadatak 3

$$\frac{x^n}{x^m} = x^{n-m}$$

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Odredite derivaciju funkcije $y = \dfrac{4x^2}{3\sqrt[7]{x^4}}$.

$$(cu)'(x) = c \cdot u'(x)$$

Rješenje

$$(x^n)' = nx^{n-1}$$

$$y = \frac{4x^2}{3\sqrt[7]{x^4}} = \frac{4x^2}{3x^{\frac{4}{7}}} = \frac{4}{3}x^{2-\frac{4}{7}}$$

$$y = \frac{4}{3}x^{\frac{10}{7}}$$

$$y' = \frac{4}{3} \cdot \left(x^{\frac{10}{7}}\right)' = \frac{4}{3} \cdot \frac{10}{7}x^{\frac{10}{7}-1}$$

$$y' = \frac{40}{21}x^{\frac{3}{7}} = \frac{40}{21}\sqrt[7]{x^3}$$

četvrti zadatak

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' =$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)'$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \big(x\big)' \cdot$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \big(x\big)' \cdot e^x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \big(x\big)' \cdot e^x +$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \big(x\big)' \cdot e^x + x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \big(x\big)' \cdot e^x + x \cdot$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

$$(x^n)' = nx^{n-1}$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

$$(x^n)' = nx^{n-1}$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

$$(x^n)' = nx^{n-1}$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x +$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

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Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x + x$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

$$(x^n)' = nx^{n-1}$$

$$(e^x)' = e^x$$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x + x \cdot e^x$$

$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$ $(x^n)' = nx^{n-1}$ $(e^x)' = e^x$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x + x \cdot e^x$$

$$y' = (1 + x)e^x$$

$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$ $(x^n)' = nx^{n-1}$ $(e^x)' = e^x$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x + x \cdot e^x$$

$$y' = (1 + x)e^x$$

$$y'(0) = (1 + 0) \cdot e^0$$

$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$ $(x^n)' = nx^{n-1}$ $(e^x)' = e^x$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x + x \cdot e^x$$

$$y' = (1 + x)e^x$$

$$y'(0) = (1 + 0) \cdot e^0$$

$$y'(0) = 1 \cdot 1$$

$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$ $(x^n)' = nx^{n-1}$ $(e^x)' = e^x$

Zadatak 4

Odredite derivaciju funkcije $y = xe^x$ *u točki* 0.

Rješenje

$$y' = \left(x\right)' \cdot e^x + x \cdot \left(e^x\right)'$$

$$y' = 1 \cdot e^x + x \cdot e^x$$

$$y' = (1 + x)e^x$$

$$y'(0) = (1 + 0) \cdot e^0$$

$$y'(0) = 1 \cdot 1$$

$$y'(0) = 1$$

peti zadatak

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \underline{\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)'}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5)}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) -}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5)}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \text{\_\_\_\_\_}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5)}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) -}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5)}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

$$(u - v)'(x) = u'(x) - v'(x)$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

$$(u + v)'(x) = u'(x) + v'(x)$$

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

$$(u + v)'(x) = u'(x) + v'(x)$$

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2} =$$

$$= \text{\_\_\_\_\_}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

$$(u - v)'(x) = u'(x) - v'(x)$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2} =$$

$$= \frac{\qquad\qquad\qquad\qquad\qquad\qquad}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

$$(u - v)'(x) = u'(x) - v'(x)$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2} =$$

$$= \frac{3x^5}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

$$(u - v)'(x) = u'(x) - v'(x)$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2} =$$

$$= \frac{3x^5 + 15x^2}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

$$(u - v)'(x) = u'(x) - v'(x)$$

Zadatak 5

$$(u + v)'(x) = u'(x) + v'(x)$$

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2} =$$

$$= \frac{3x^5 + 15x^2 - 3x^5}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

$$(u - v)'(x) = u'(x) - v'(x)$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2} =$$

$$= \frac{3x^5 + 15x^2 - 3x^5 + 15x^2}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

Zadatak 5

Odredite derivaciju funkcije $y = \dfrac{x^3 - 5}{x^3 + 5}$.

$$(u - v)'(x) = u'(x) - v'(x)$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Rješenje

$$y' = \frac{(x^3 - 5)' \cdot (x^3 + 5) - (x^3 - 5) \cdot (x^3 + 5)'}{(x^3 + 5)^2} =$$

$$= \frac{3x^2 \cdot (x^3 + 5) - (x^3 - 5) \cdot 3x^2}{(x^3 + 5)^2} =$$

$$= \frac{3x^5 + 15x^2 - 3x^5 + 15x^2}{(x^3 + 5)^2} = \frac{30x^2}{(x^3 + 5)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

$$(x^n)' = nx^{n-1}$$

$$(c)' = 0$$

šesti zadatak

Zadatak 6

Odredite derivaciju funkcije $y = \sqrt[3]{x}\log_2 x$.

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Odredite derivaciju funkcije $y = \sqrt[3]{x}\log_2 x$.

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Rješenje

$$y' = \left(\sqrt[3]{x}\log_2 x\right)'$$

Zadatak 6

Odredite derivaciju funkcije $y = \sqrt[3]{x}\log_2 x$.

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Rješenje

$$y' = \left(\sqrt[3]{x}\log_2 x\right)' = \left(x^{\frac{1}{3}}\log_2 x\right)'$$

$$(uv)'(x) = u'(x)\cdot v(x) + u(x)\cdot v'(x)$$

Zadatak 6

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

Odredite derivaciju funkcije $y = \sqrt[3]{x}\log_2 x$.

Rješenje

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$$= \frac{1}{3}x^{-\frac{2}{3}}\log_2 x + x^{\frac{1}{3}} \cdot \frac{1}{x \ln 2}$$

$$(x^n)' = nx^{n-1}$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

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Zadatak 6

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Rješenje

$$y' = \left(\sqrt[3]{x}\log_2 x\right)' = \left(x^{\frac{1}{3}}\log_2 x\right)' =$$

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Rješenje

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$$= \frac{1}{3}x^{-\frac{2}{3}}\log_2 x + x^{\frac{1}{3}} \cdot \frac{1}{x\ln 2} =$$

$$= \frac{1}{3}x^{-\frac{2}{3}}\log_2 x + \frac{x^{-\frac{2}{3}}}{\ln 2}$$

$$(x^n)' = nx^{n-1}$$

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$$(uv)'(x) = u'(x)\cdot v(x) + u(x)\cdot v'(x)$$

sedmi zadatak

Zadatak 7

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Zadatak 7

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

$$y' = \text{———————————————————————————————}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x)\cdot v(x) - u(x)\cdot v'(x)}{v(x)^2}$$

Zadatak 7

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

$$y' = \frac{}{(\ln x - 1)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x)\cdot v(x) - u(x)\cdot v'(x)}{v(x)^2}$$

Zadatak 7

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x)\cdot v(x) - u(x)\cdot v'(x)}{v(x)^2}$$

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Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

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Zadatak 7

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 7

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Rješenje

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Zadatak 7

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 7

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

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$$(u+v)'(x) = u'(x) + v'(x)$$

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

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$$= \frac{\frac{1}{x} \cdot (\ln x - 1) -}{(\ln x - 1)^2}$$

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Rješenje

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

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

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

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Zadatak 7

$$(u+v)'(x) = u'(x) + v'(x)$$

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$= \text{\_\_\_\_\_}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 7

$$(u+v)'(x) = u'(x) + v'(x)$$

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$= \frac{\qquad\qquad\qquad\qquad}{(\ln x - 1)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 7

$$(u+v)'(x) = u'(x) + v'(x)$$

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

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 7

$$(u+v)'(x) = u'(x) + v'(x)$$

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

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

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x)\cdot v(x) - u(x)\cdot v'(x)}{v(x)^2}$$

Zadatak 7

$$(u+v)'(x) = u'(x) + v'(x)$$

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x)\cdot v(x) - u(x)\cdot v'(x)}{v(x)^2}$$

Zadatak 7

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x)\cdot v(x) - u(x)\cdot v'(x)}{v(x)^2}$$

Zadatak 7

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Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 7

$$(u+v)'(x) = u'(x) + v'(x)$$

Odredite derivaciju funkcije $y = \frac{\ln x+1}{\ln x-1}$.

Rješenje

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

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

$$(c)' = 0$$

$$(\ln x)' = \frac{1}{x}$$

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

$$= \frac{-2}{x\,(\ln x - 1)^2}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x)\cdot v(x) - u(x)\cdot v'(x)}{v(x)^2}$$

osmi zadatak

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)'$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)'$$

$$(u + v)'(x) = u'(x) + v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)'$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x +$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)'$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0$$

$$(c)' = 0$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10$$

$(c)' = 0$

$(a^x)' = a^x \ln a$

$(u + v)'(x) = u'(x) + v'(x)$

$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

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Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10 \cdot \log x +$$

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$(a^x)' = a^x \ln a$

$(u + v)'(x) = u'(x) + v'(x)$

$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10 \cdot \log x + 10^x$$

$(c)' = 0$

$(a^x)' = a^x \ln a$

$(u + v)'(x) = u'(x) + v'(x)$

$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10 \cdot \log x + 10^x \cdot$$

$$(c)' = 0$$

$$(a^x)' = a^x \ln a$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

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Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10 \cdot \log x + 10^x \cdot \frac{1}{x \ln 10} =$$

$$= \left(\qquad\qquad \right) 10^x$$

$$(c)' = 0$$

$$(a^x)' = a^x \ln a$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10 \cdot \log x + 10^x \cdot \frac{1}{x \ln 10} =$$

$$= \left(\ln 10 \log x + \right) 10^x$$

$$(c)' = 0$$

$$(a^x)' = a^x \ln a$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10 \cdot \log x + 10^x \cdot \frac{1}{x \ln 10} =$$

$$= \left(\ln 10 \log x + \qquad \right) 10^x$$

$$(c)' = 0$$

$$(a^x)' = a^x \ln a$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

Zadatak 8

Odredite derivaciju funkcije $y = 10^x \log x + \ln 10$.

Rješenje

$$y' = (10^x \log x + \ln 10)' = (10^x \log x)' + (\ln 10)' =$$

$$= (10^x)' \cdot \log x + 10^x \cdot (\log x)' + 0 =$$

$$= 10^x \ln 10 \cdot \log x + 10^x \cdot \frac{1}{x \ln 10} =$$

$$= \left(\ln 10 \log x + \frac{1}{x \ln 10} \right) 10^x$$

$$(c)' = 0$$

$$(a^x)' = a^x \ln a$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

$$(u + v)'(x) = u'(x) + v'(x)$$

$$(uv)'(x) = u'(x) \cdot v(x) + u(x) \cdot v'(x)$$

deveti zadatak

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Rješenje

$$y' =$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$\left(e^{x}\right)' = e^{x}$$

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Rješenje

$$y' = e^{\sqrt{x}}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$\left(e^{x}\right)' = e^{x}$$

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Rješenje

$$y' = e^{\sqrt{x}} \cdot$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$\left(e^{x}\right)' = e^{x}$$

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Rješenje

$$y' = e^{\sqrt{x}} \cdot \left(\sqrt{x}\right)'$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$\left(e^{x}\right)' = e^{x}$$

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Rješenje

$$y' = e^{\sqrt{x}} \cdot \left(\sqrt{x}\right)' = e^{\sqrt{x}}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$\left(e^{x}\right)' = e^{x}$$

$$\left(\sqrt{x}\right)' = \frac{1}{2\sqrt{x}}$$

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Rješenje

$$y' = e^{\sqrt{x}} \cdot \left(\sqrt{x}\right)' = e^{\sqrt{x}} \cdot \frac{1}{2\sqrt{x}}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$\left(e^{x}\right)' = e^{x}$$

$$\left(\sqrt{x}\right)' = \frac{1}{2\sqrt{x}}$$

Zadatak 9

Odredite derivaciju funkcije $y = e^{\sqrt{x}}$.

Rješenje

$$y' = e^{\sqrt{x}} \cdot \left(\sqrt{x}\right)' = e^{\sqrt{x}} \cdot \frac{1}{2\sqrt{x}}$$

$$y' = \frac{e^{\sqrt{x}}}{2\sqrt{x}}$$

$$\left(e^{\text{nešto}}\right)' = e^{\text{nešto}} \cdot (\text{nešto})'$$

$$\left(e^{x}\right)' = e^{x}$$

deseti zadatak

Zadatak 10

Odredite derivaciju funkcije $y = (x^2 + 3x - 5)^{20}$.

Zadatak 10

Odredite derivaciju funkcije $y = (x^2 + 3x - 5)^{20}$.

Rješenje

$$y' =$$

$$\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$(x^n)' = nx^{n-1}$$

Zadatak 10

Odredite derivaciju funkcije $y = \left(x^2 + 3x - 5\right)^{20}$.

Rješenje

$$y' = 20\left(x^2 + 3x - 5\right)^{19}$$

$$\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$\left(x^n\right)' = nx^{n-1}$$

Zadatak 10

Odredite derivaciju funkcije $y = \left(x^2 + 3x - 5\right)^{20}$.

Rješenje

$$y' = 20\left(x^2 + 3x - 5\right)^{19} \cdot$$

$$\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$\left(x^n\right)' = nx^{n-1}$$

Zadatak 10

Odredite derivaciju funkcije $y = \left(x^2 + 3x - 5\right)^{20}$.

Rješenje

$$y' = 20\left(x^2 + 3x - 5\right)^{19} \cdot \left(x^2 + 3x - 5\right)'$$

$$\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$\left(x^n\right)' = nx^{n-1}$$

Zadatak 10

Odredite derivaciju funkcije $y = \left(x^2 + 3x - 5\right)^{20}$.

Rješenje

$$y' = 20\left(x^2 + 3x - 5\right)^{19} \cdot \left(x^2 + 3x - 5\right)' =$$

$$= 20\left(x^2 + 3x - 5\right)^{19}$$

$$\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$\left(x^n\right)' = nx^{n-1}$$

Zadatak 10

Odredite derivaciju funkcije $y = \left(x^2 + 3x - 5\right)^{20}$.

Rješenje

$$y' = 20\left(x^2 + 3x - 5\right)^{19} \cdot \left(x^2 + 3x - 5\right)' =$$

$$= 20\left(x^2 + 3x - 5\right)^{19}(2x$$

$$\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$\left(x^n\right)' = nx^{n-1}$$

Zadatak 10

Odredite derivaciju funkcije $y = \left(x^2 + 3x - 5\right)^{20}$.

Rješenje

$$y' = 20\left(x^2 + 3x - 5\right)^{19} \cdot \left(x^2 + 3x - 5\right)' =$$

$$= 20\left(x^2 + 3x - 5\right)^{19}(2x + 3)$$

$$\left((\text{nešto})^n\right)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$\left(x^n\right)' = nx^{n-1}$$

jedanaesti zadatak

Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' =$$

$$\left(\log_a (\text{nešto})\right)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})'$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' = \frac{1}{(5^x - x^5)\ln 5}$$

$$\left(\log_a (\text{nešto})\right)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})'$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' = \frac{1}{(5^x - x^5)\ln 5} \cdot$$

$$\left(\log_a (\text{nešto})\right)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})'$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' = \frac{1}{(5^x - x^5)\ln 5} \cdot \left(5^x - x^5\right)'$$

$$\left(\log_a (\text{nešto})\right)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})'$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' = \frac{1}{(5^x - x^5)\ln 5} \cdot \left(5^x - x^5\right)' = \text{————————}$$

$$\left(\log_a (\text{nešto})\right)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})'$$

$$(\log_a x)' = \frac{1}{x \ln a}$$

$$(a^x)' = a^x \ln a \qquad (x^n)' = nx^{n-1}$$

Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' = \frac{1}{(5^x - x^5)\ln 5} \cdot (5^x - x^5)' = \frac{}{(5^x - x^5)\ln 5}$$

$$\big(\log_a (\text{nešto})\big)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})' \qquad (\log_a x)' = \frac{1}{x \ln a}$$

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Zadatak 11

Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' = \frac{1}{(5^x - x^5)\ln 5} \cdot (5^x - x^5)' = \frac{5^x \ln 5}{(5^x - x^5)\ln 5}$$

$$\big(\log_a (\text{nešto})\big)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})' \qquad (\log_a x)' = \frac{1}{x \ln a}$$

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Odredite derivaciju funkcije $y = \log_5 (5^x - x^5)$.

Rješenje

$$y' = \frac{1}{(5^x - x^5)\ln 5} \cdot (5^x - x^5)' = \frac{5^x \ln 5 - 5x^4}{(5^x - x^5)\ln 5}$$

$$\big(\log_a (\text{nešto})\big)' = \frac{1}{\text{nešto} \cdot \ln a} \cdot (\text{nešto})' \qquad (\log_a x)' = \frac{1}{x \ln a}$$

dvanaesti zadatak

Zadatak 12

Odredite derivacije funkcija $f(x) = \ln 5x$, $g(x) = \ln x^5$ *i* $h(x) = \ln^5 x$.

Zadatak 12

$$\big((\text{nešto})^n\big)' = n(\text{nešto})^{n-1} \cdot (\text{nešto})'$$

$$(x^n)' = nx^{n-1}$$

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$$f(x) = \ln 5x$$

$$f'(x) =$$

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$$\ln^k x = (\ln x)^k$$

Zadatak 12

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$$h'(x) = 5\,(\ln x)^4 \cdot (\ln x)'$$

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$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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trinaesti zadatak

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' =$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}}$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)'$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$= \frac{x+1}{x-1}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$= \frac{x+1}{x-1} \cdot$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$= \frac{x+1}{x-1} \cdot$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

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Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

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Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln\left(\text{nešto}\right)\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

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Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln\left(\text{nešto}\right)\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$= \frac{x+1}{x-1}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

$$= \frac{x+1}{x-1} \cdot$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

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$$\left(\ln\left(\text{nešto}\right)\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$= \frac{x+1}{x-1} \cdot \text{\_\_\_\_\_}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

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Rješenje

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$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

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$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

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$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

$$\left(\ln(\text{nešto})\right)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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

$$= \frac{x+1}{x-1} \cdot \frac{1 \cdot (x+1) - (x-1) \cdot 1}{(x+1)^2} = \text{\_\_\_\_\_}$$

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

Zadatak 13

Odredite derivaciju funkcije $y = \ln \dfrac{x-1}{x+1}$.

$$(\ln x)' = \frac{1}{x}$$

Rješenje

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$y' = \frac{1}{\dfrac{x-1}{x+1}} \cdot \left(\frac{x-1}{x+1}\right)' =$$

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

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

$$\left(\frac{u}{v}\right)'(x) = \frac{u'(x) \cdot v(x) - u(x) \cdot v'(x)}{v(x)^2}$$

četrnaesti zadatak

Zadatak 14

Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

Zadatak 14

Odredite derivaciju funkcije $y = \sqrt{\sin(x^2 - 1)}$.

$$(\sqrt{x})' = \frac{1}{2\sqrt{x}}$$

Rješenje

$$y' =$$

$$\left(\sqrt{\text{nešto}}\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

Zadatak 14

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

Odredite derivaciju funkcije $y = \sqrt{\sin(x^2 - 1)}$.

Rješenje

$$y' = \frac{1}{2\sqrt{\sin(x^2 - 1)}}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

Zadatak 14

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

Odredite derivaciju funkcije $y = \sqrt{\sin(x^2 - 1)}$.

Rješenje

$$y' = \frac{1}{2\sqrt{\sin(x^2 - 1)}} \cdot$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

Zadatak 14

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

Rješenje

$$y' = \frac{1}{2\sqrt{\sin\left(x^2 - 1\right)}} \cdot \Big(\sin\left(x^2 - 1\right)\Big)'$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

Zadatak 14

$$(\sqrt{x}\,)' = \frac{1}{2\sqrt{x}}$$

Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

Rješenje

$$y' = \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \Big(\sin\left(x^2-1\right)\Big)' =$$

$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

Zadatak 14

Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

$$\left(\sqrt{x}\,\right)' = \frac{1}{2\sqrt{x}}$$

$$\left(\sin x\right)' = \cos x$$

Rješenje

$$y' = \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \Big(\sin\left(x^2-1\right)\Big)' =$$

$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

Zadatak 14

Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

$$\left(\sqrt{x}\,\right)' = \frac{1}{2\sqrt{x}}$$

$$(\sin x)' = \cos x$$

Rješenje

$$y' = \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \Big(\sin\left(x^2-1\right)\Big)' =$$

$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \cos\left(x^2-1\right)$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

Zadatak 14

Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

$$\left(\sqrt{x}\,\right)' = \frac{1}{2\sqrt{x}}$$

Rješenje

$$\left(\sin x\right)' = \cos x$$

$$y' = \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \Big(\sin\left(x^2-1\right)\Big)' =$$

$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \cos\left(x^2-1\right) \cdot$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

Zadatak 14

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Rješenje

$$(\sin x)' = \cos x$$

$$y' = \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \Big(\sin\left(x^2-1\right)\Big)' =$$

$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \cos\left(x^2-1\right) \cdot \left(x^2-1\right)'$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

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$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \cos\left(x^2-1\right) \cdot \left(x^2-1\right)' =$$

$$= \text{\_\_\_\_\_}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

Zadatak 14

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Rješenje

$$\left(\sin x\right)' = \cos x$$

$$y' = \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \Big(\sin\left(x^2-1\right)\Big)' =$$

$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \cos\left(x^2-1\right) \cdot \left(x^2-1\right)' =$$

$$= \frac{}{2\sqrt{\sin\left(x^2-1\right)}}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

Zadatak 14

Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

$$\left(\sqrt{x}\,\right)' = \frac{1}{2\sqrt{x}}$$

Rješenje

$$\left(\sin x\right)' = \cos x$$

$$\begin{aligned} y' &= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \Big(\sin\left(x^2-1\right)\Big)' = \\ &= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \cos\left(x^2-1\right) \cdot \left(x^2-1\right)' = \\ &= \frac{2x\cos\left(x^2-1\right)}{2\sqrt{\sin\left(x^2-1\right)}} \end{aligned}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

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Odredite derivaciju funkcije $y = \sqrt{\sin\left(x^2 - 1\right)}$.

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Rješenje

$$\left(\sin x\right)' = \cos x$$

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$$= \frac{1}{2\sqrt{\sin\left(x^2-1\right)}} \cdot \cos\left(x^2-1\right) \cdot \left(x^2-1\right)' =$$

$$= \frac{2x\cos\left(x^2-1\right)}{2\sqrt{\sin\left(x^2-1\right)}} = \frac{x\cos\left(x^2-1\right)}{\sqrt{\sin\left(x^2-1\right)}}$$

$$\left(\sqrt{\text{nešto}}\,\right)' = \frac{1}{2\sqrt{\text{nešto}}} \cdot (\text{nešto})'$$

$$\Big(\sin\left(\text{nešto}\right)\Big)' = \cos\left(\text{nešto}\right) \cdot (\text{nešto})'$$

petnaesti zadatak

Zadatak 15

Odredite jednadžbu tangente na graf funkcije $y = \ln(5 - 4x)$ *u točki s apscisom* 1. *Odredite duljinu odsječka dobivene tangente između koordinatnih osi.*

Zadatak 15

Odredite jednadžbu tangente na graf funkcije $y = \ln(5 - 4x)$ *u točki s apscisom* 1. *Odredite duljinu odsječka dobivene tangente između koordinatnih osi.*

Rješenje

- Jednadžba tangente na graf funkcije $y = f(x)$ u točki $T_0(x_0, y_0)$

$$t \ldots y - y_0 = k_t \cdot (x - x_0)$$

Zadatak 15

Odredite jednadžbu tangente na graf funkcije $y = \ln(5 - 4x)$ *u točki s apscisom* 1. *Odredite duljinu odsječka dobivene tangente između koordinatnih osi.*

Rješenje

- Jednadžba tangente na graf funkcije $y = f(x)$ u točki $T_0(x_0, y_0)$

$$t \ldots y - y_0 = k_t \cdot (x - x_0)$$

- Pritom je $y_0 = f(x_0)$ i $k_t = f'(x_0)$.

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

$$y_0 = \ln(5 - 4 \cdot 1)$$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

$$y_0 = \ln(5 - 4 \cdot 1) = \ln 1 = 0$$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

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Točka: $T_0(1, 0)$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

$$y_0 = \ln(5 - 4 \cdot 1) = \ln 1 = 0$$

Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' =$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

$$y_0 = \ln(5 - 4 \cdot 1) = \ln 1 = 0$$

Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x}$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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$$y = \ln(5 - 4x)$$

- Znamo da je $x_0 = 1$.

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Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x} \cdot (5 - 4x)'$$

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Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x} \cdot (5 - 4x)' = \frac{1}{5 - 4x}$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

$$y_0 = \ln(5 - 4 \cdot 1) = \ln 1 = 0$$

Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x} \cdot (5 - 4x)' = \frac{1}{5 - 4x} \cdot (-4)$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

$$y_0 = \ln(5 - 4 \cdot 1) = \ln 1 = 0$$

Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x} \cdot (5 - 4x)' = \frac{1}{5 - 4x} \cdot (-4) = \frac{-4}{5 - 4x}$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

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$y = \ln(5 - 4x)$

- Znamo da je $x_0 = 1$.

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Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x} \cdot (5 - 4x)' = \frac{1}{5 - 4x} \cdot (-4) = \frac{-4}{5 - 4x}$$

- Koeficijent smjera tangente

$$k_t = y'(1)$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

$y = \ln(5 - 4x)$

- Znamo da je $x_0 = 1$.

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Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x} \cdot (5 - 4x)' = \frac{1}{5 - 4x} \cdot (-4) = \frac{-4}{5 - 4x}$$

- Koeficijent smjera tangente

$$k_t = y'(1) = \frac{-4}{5 - 4 \cdot 1}$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

- Znamo da je $x_0 = 1$.

$$y = \ln(5 - 4x)$$

$$y_0 = \ln(5 - 4 \cdot 1) = \ln 1 = 0$$

Točka: $T_0(1, 0)$

- Derivacija funkcije

$$y' = \frac{1}{5 - 4x} \cdot (5 - 4x)' = \frac{1}{5 - 4x} \cdot (-4) = \frac{-4}{5 - 4x}$$

- Koeficijent smjera tangente

$$k_t = y'(1) = \frac{-4}{5 - 4 \cdot 1} = -4$$

$$\big(\ln(\text{nešto})\big)' = \frac{1}{\text{nešto}} \cdot (\text{nešto})'$$

$$(\ln x)' = \frac{1}{x}$$

$x_0 = 1$ $y_0 = 0$ $k_t = -4$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$

$x_0 = 1$ $y_0 = 0$ $k_t = -4$

- Jednadžba tangente

$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 0 = -4 \cdot (x - 1)$$

$x_0 = 1$ $y_0 = 0$ $k_t = -4$

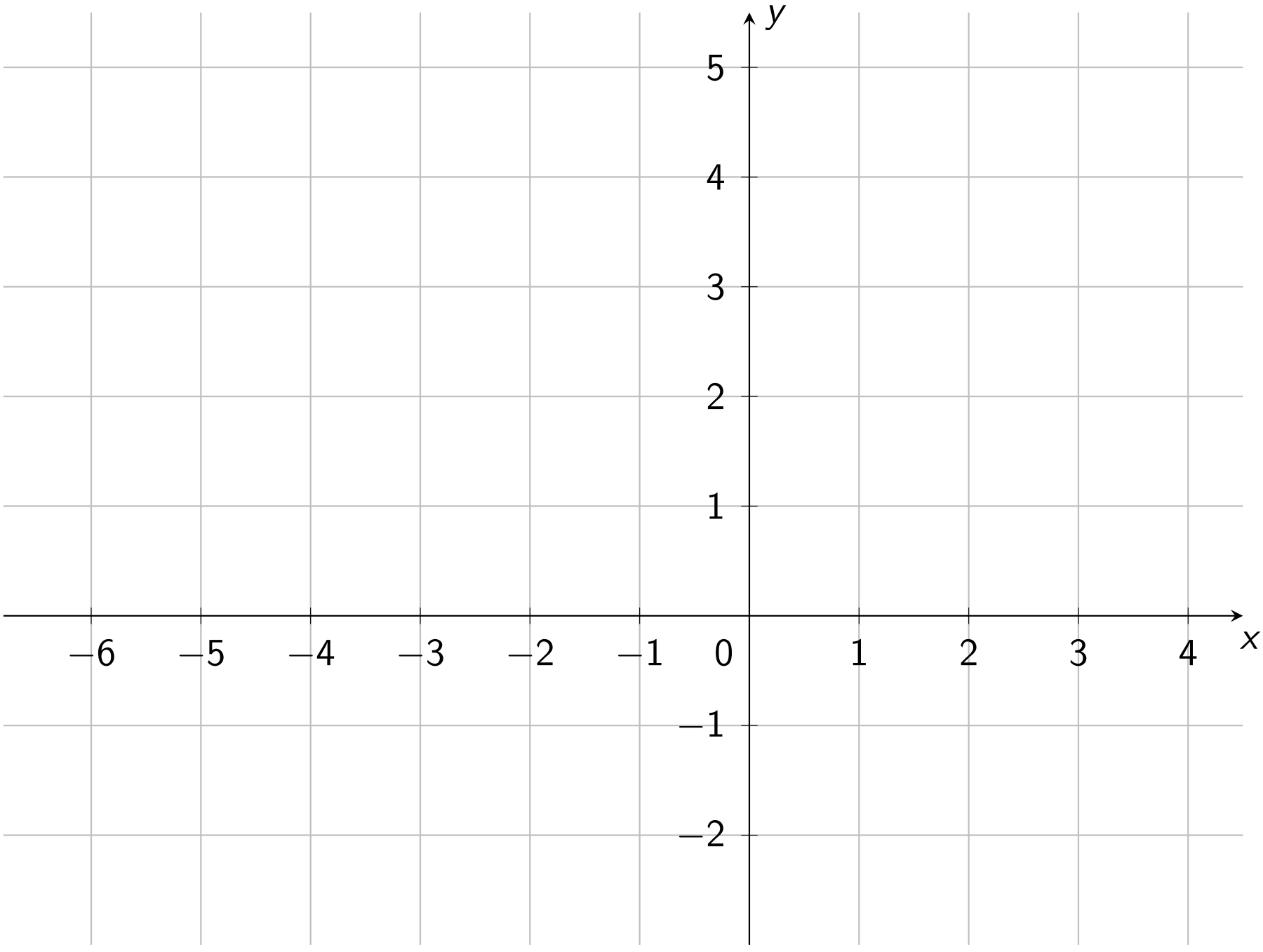
- Jednadžba tangente

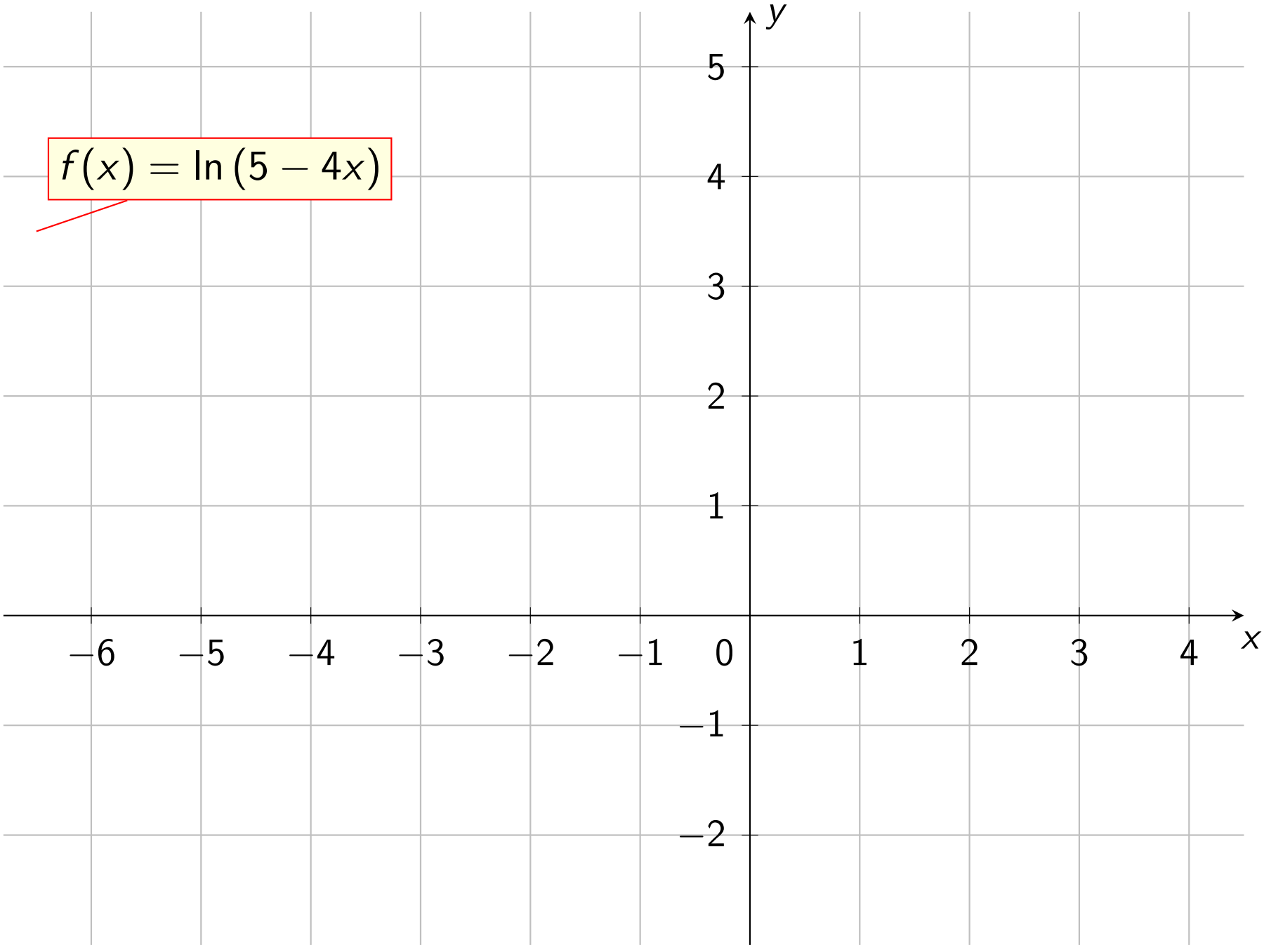
$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 0 = -4 \cdot (x - 1)$$
$$y = -4x + 4$$

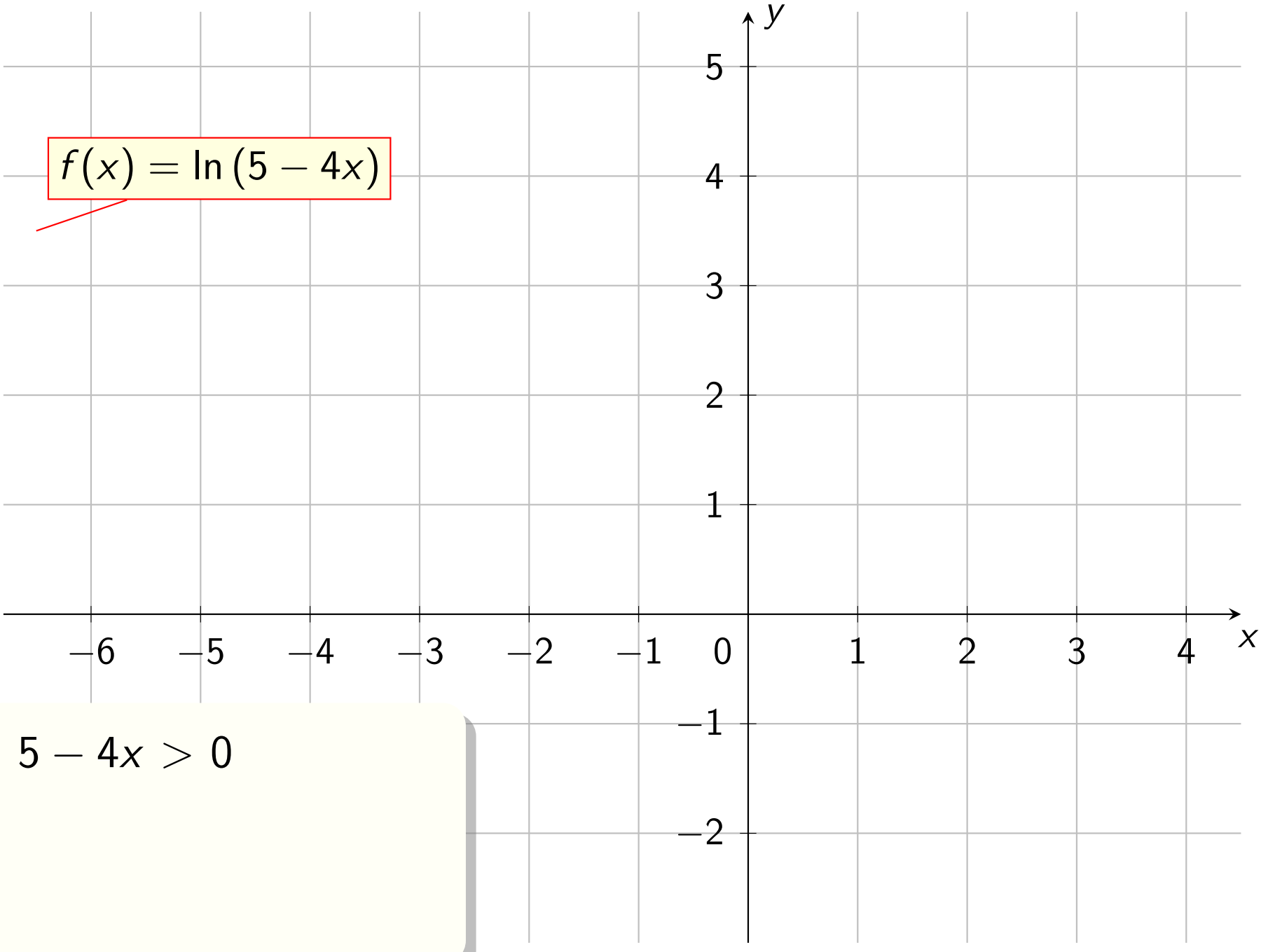
$x_0 = 1$ $y_0 = 0$ $k_t = -4$

- Jednadžba tangente

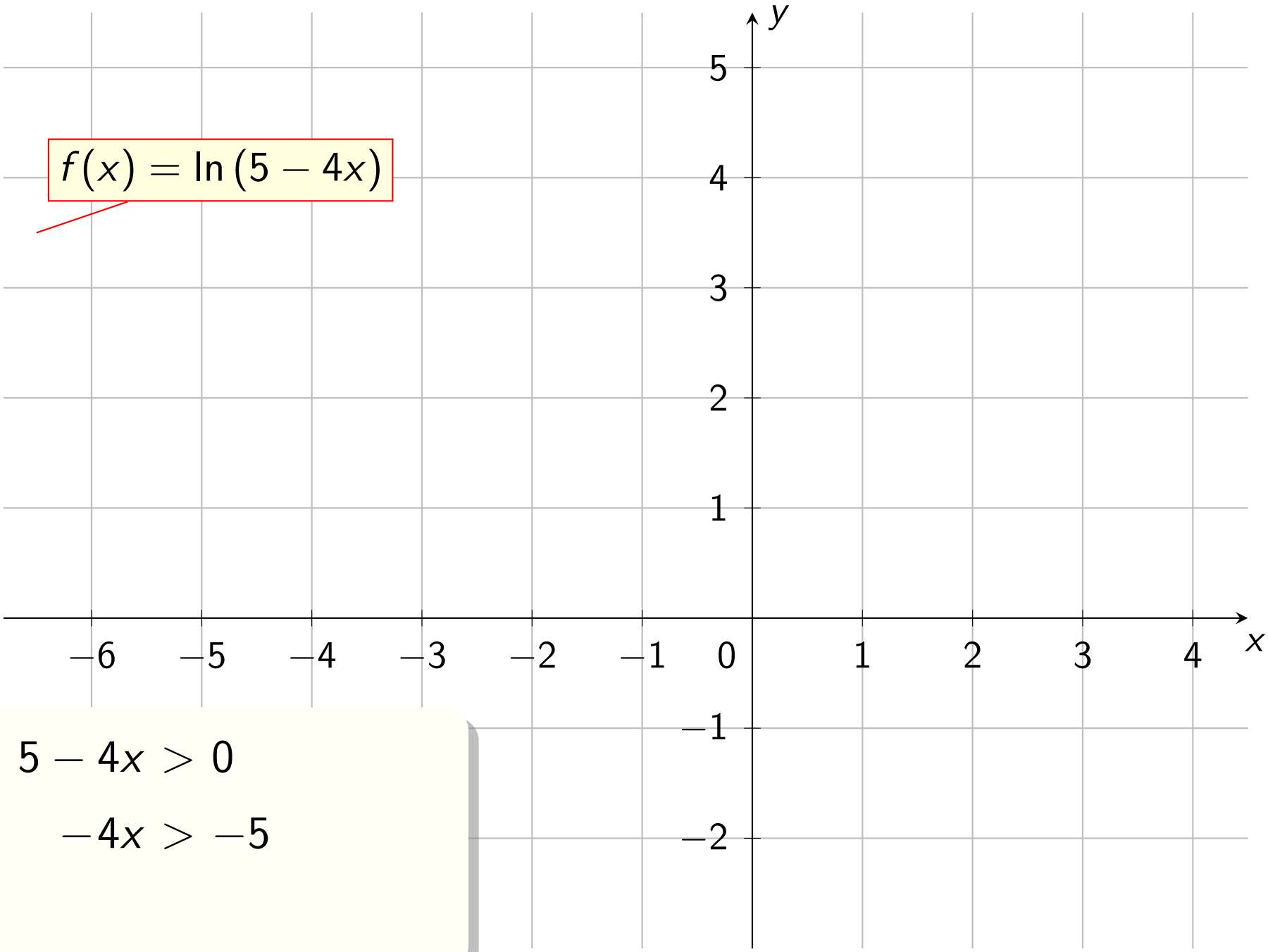
$$y - y_0 = k_t \cdot (x - x_0)$$
$$y - 0 = -4 \cdot (x - 1)$$
$$\boxed{y = -4x + 4}$$


y
x
5
4
3
2
1
−1
−2
−6
−5
−4
−3
−2
−1
0
1
2
3
4


$f(x) = \ln(5 - 4x)$
y
x
5
4
3
2
1
−1
−2
−6
−5
−4
−3
−2
−1
0
1
2
3
4

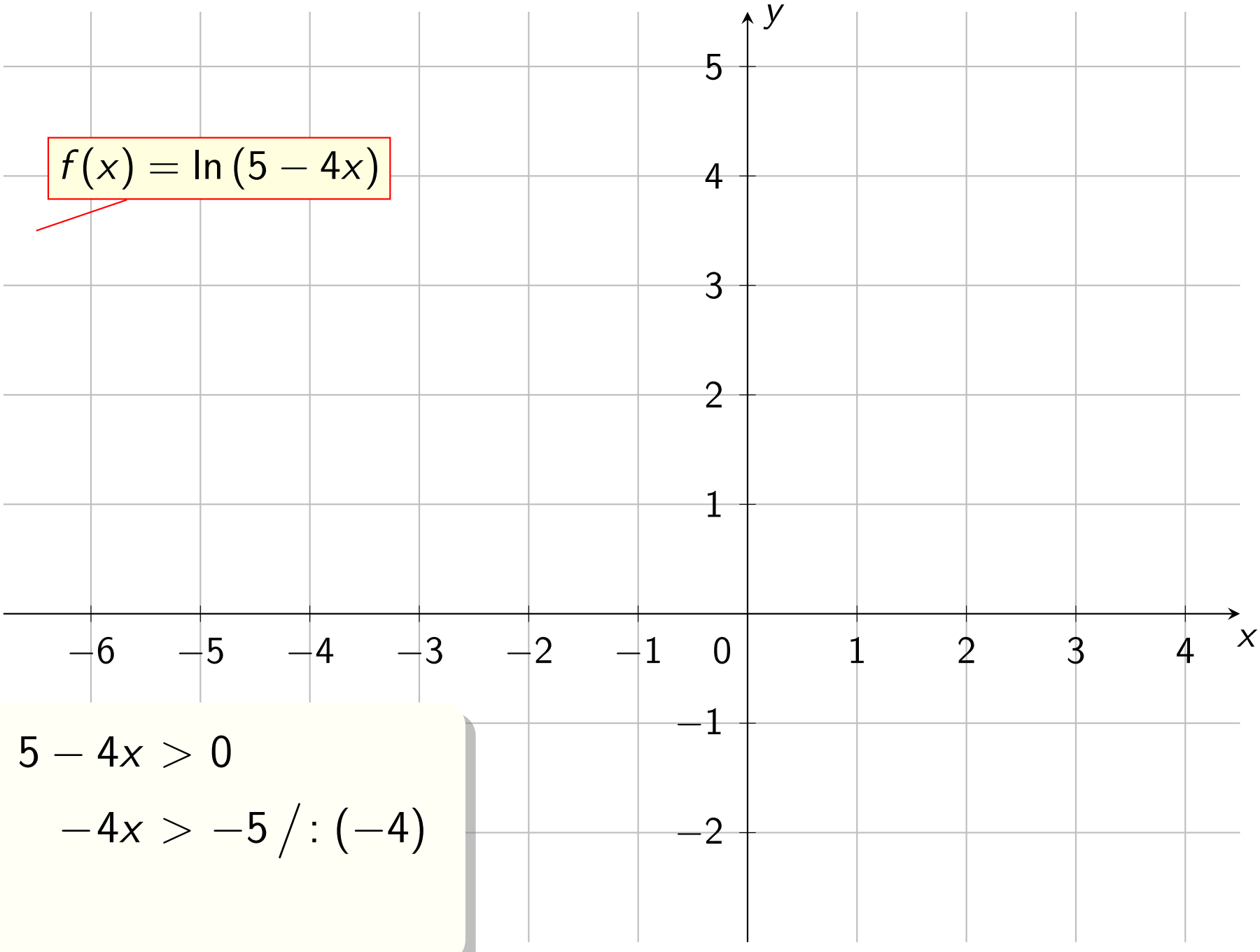


$5 - 4x > 0$



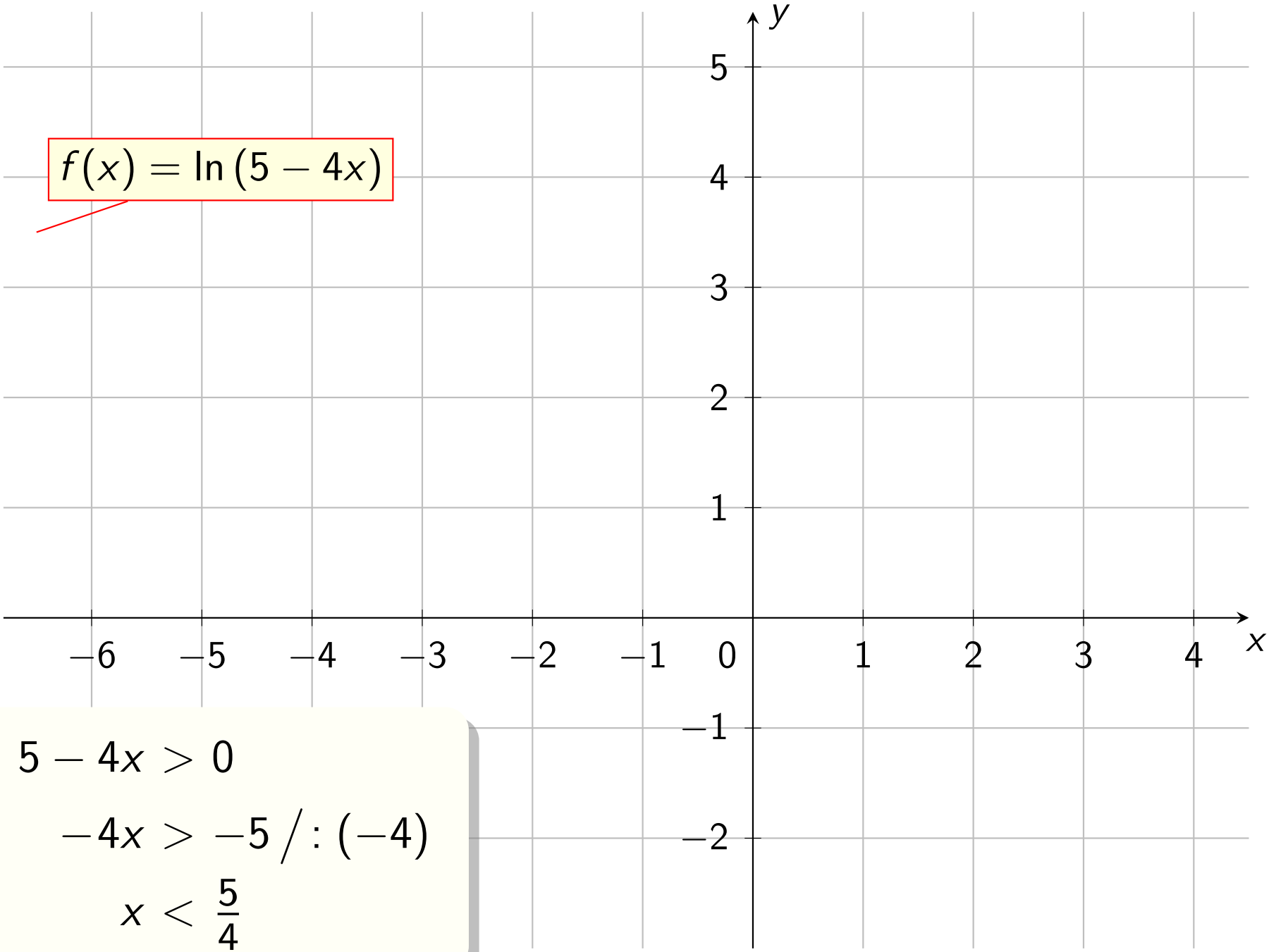
$5 - 4x > 0$

$-4x > -5$



$5 - 4x > 0$

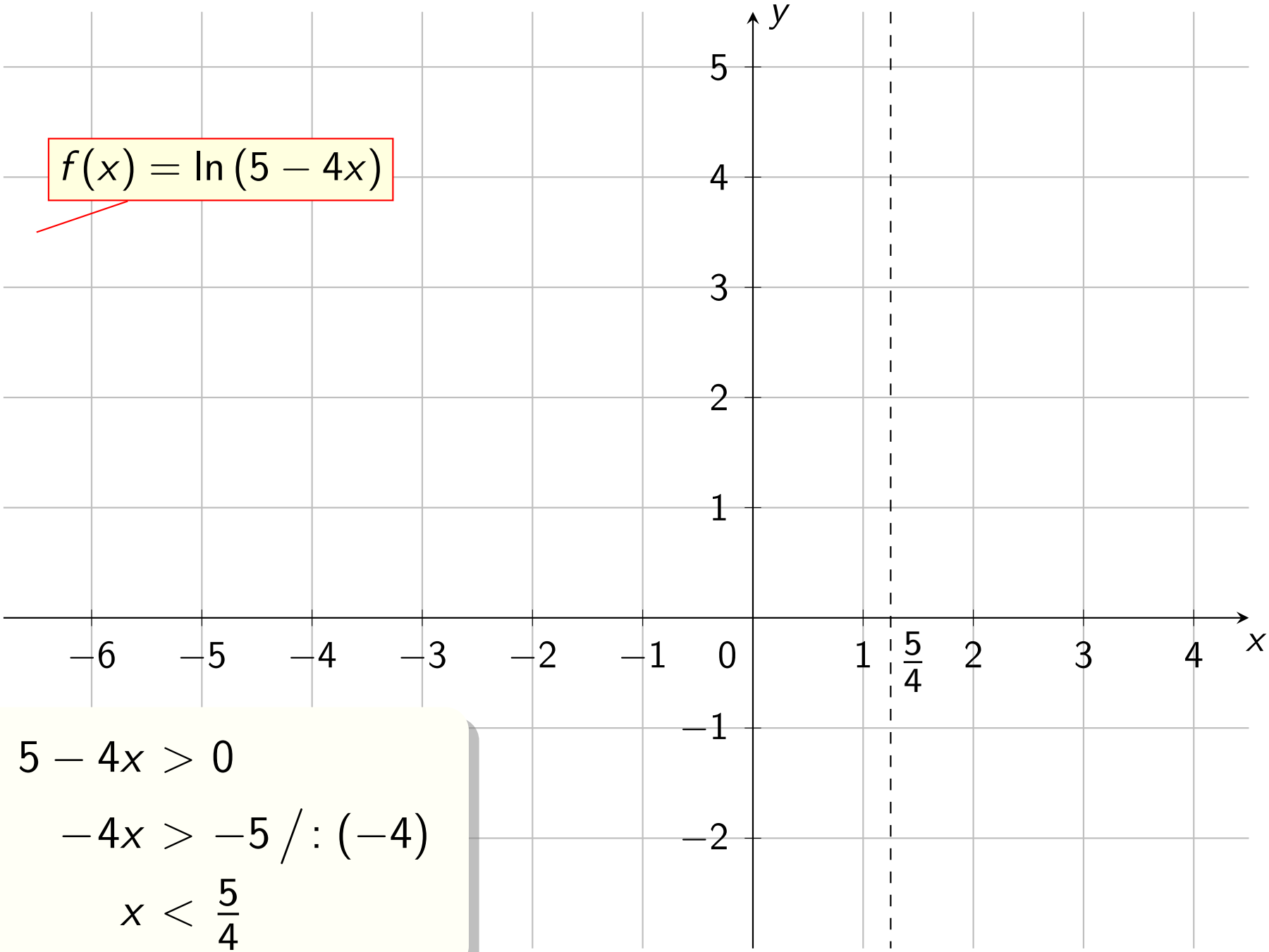
$-4x > -5 \,/ : (-4)$



$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

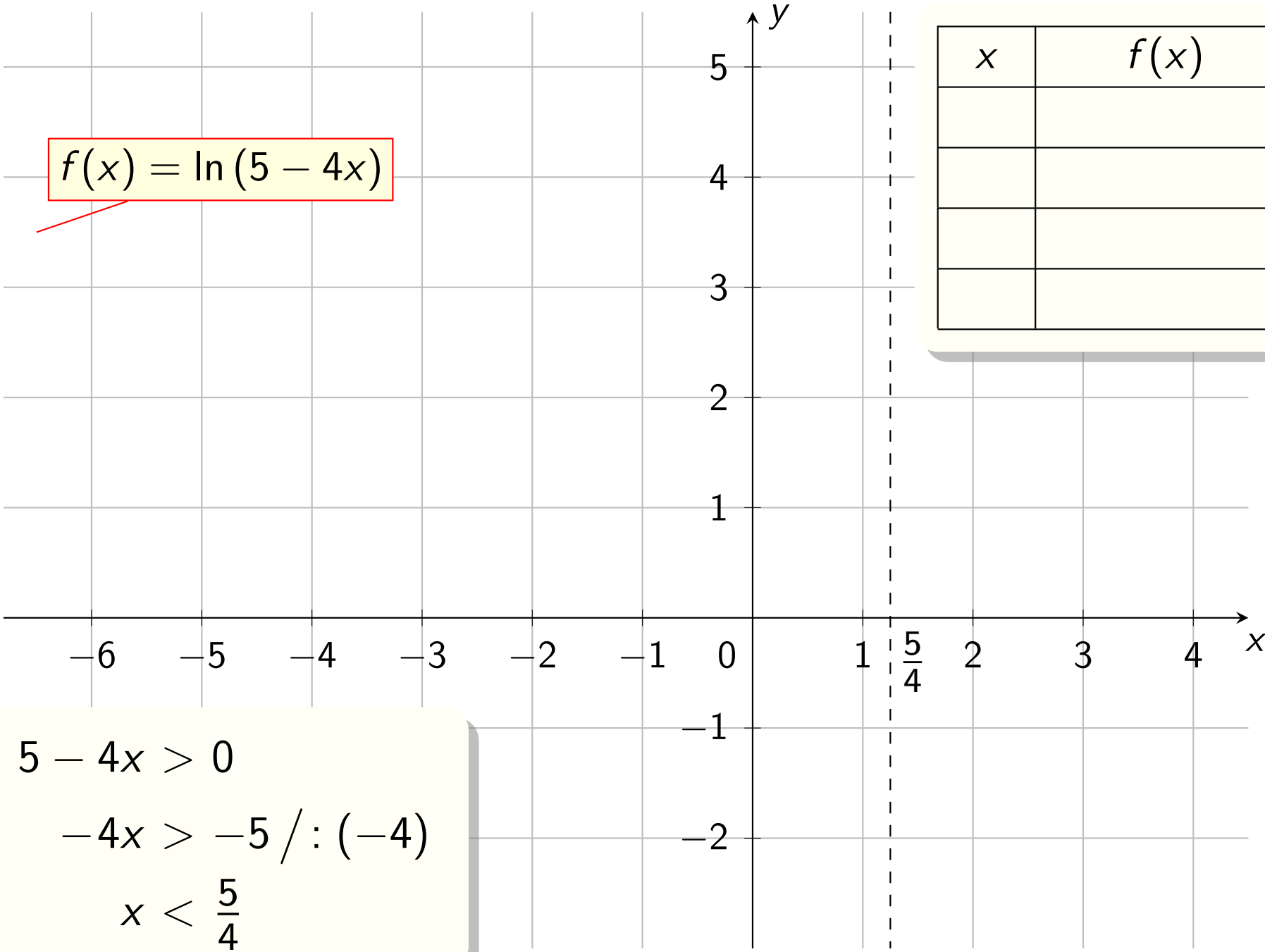
$$x < \frac{5}{4}$$



$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



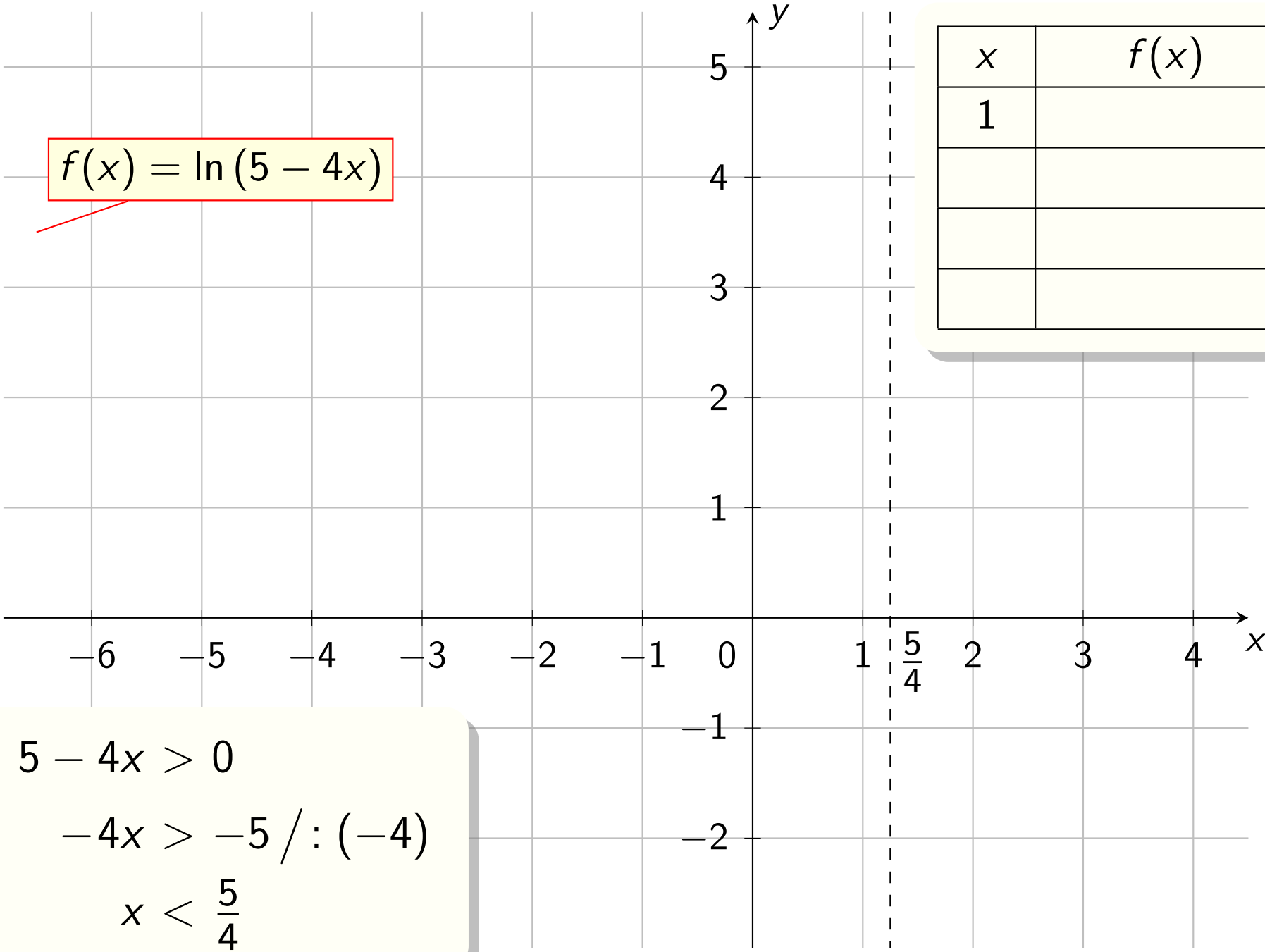
$f(x) = \ln(5 - 4x)$

x	$f(x)$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



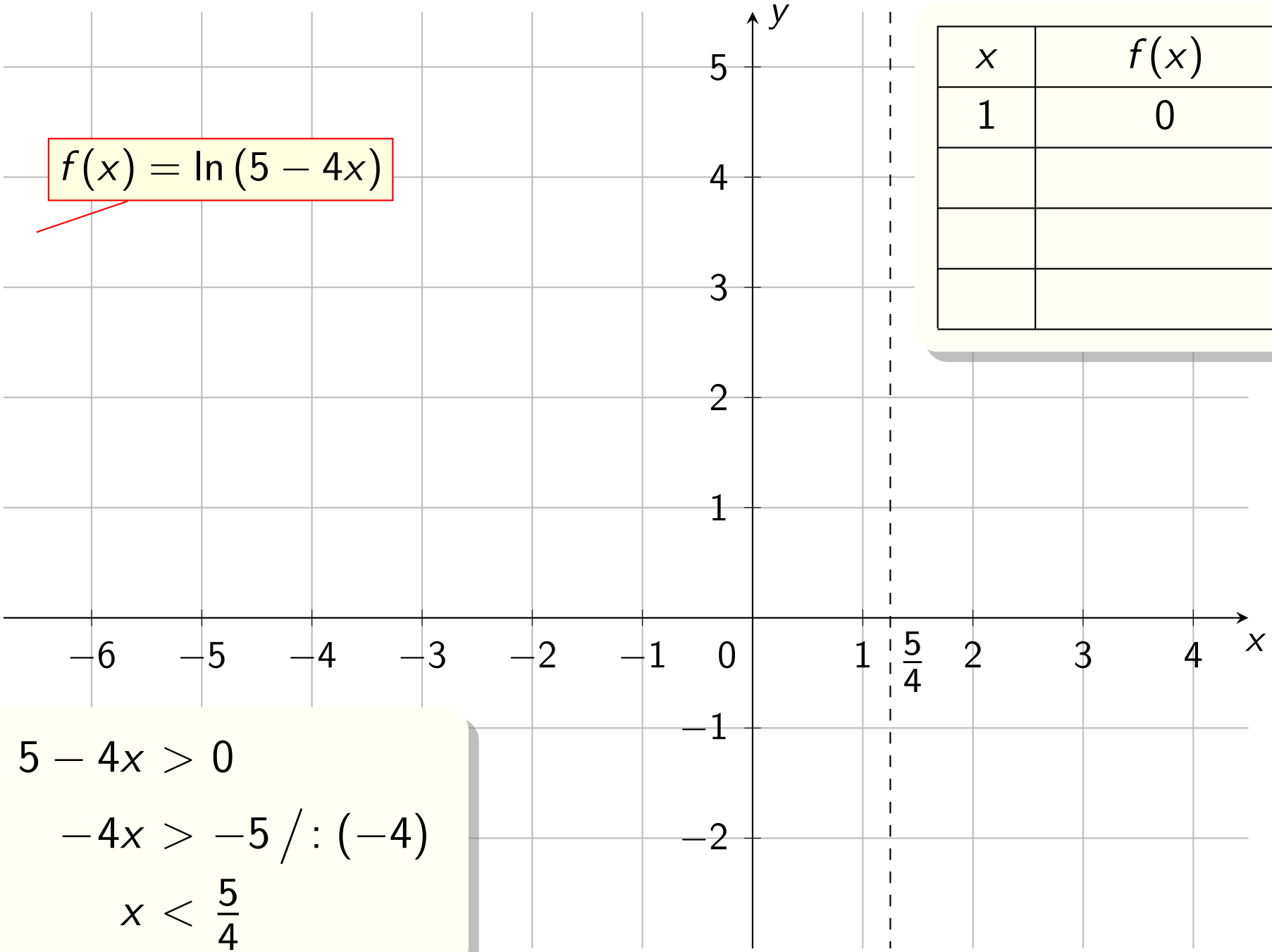
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



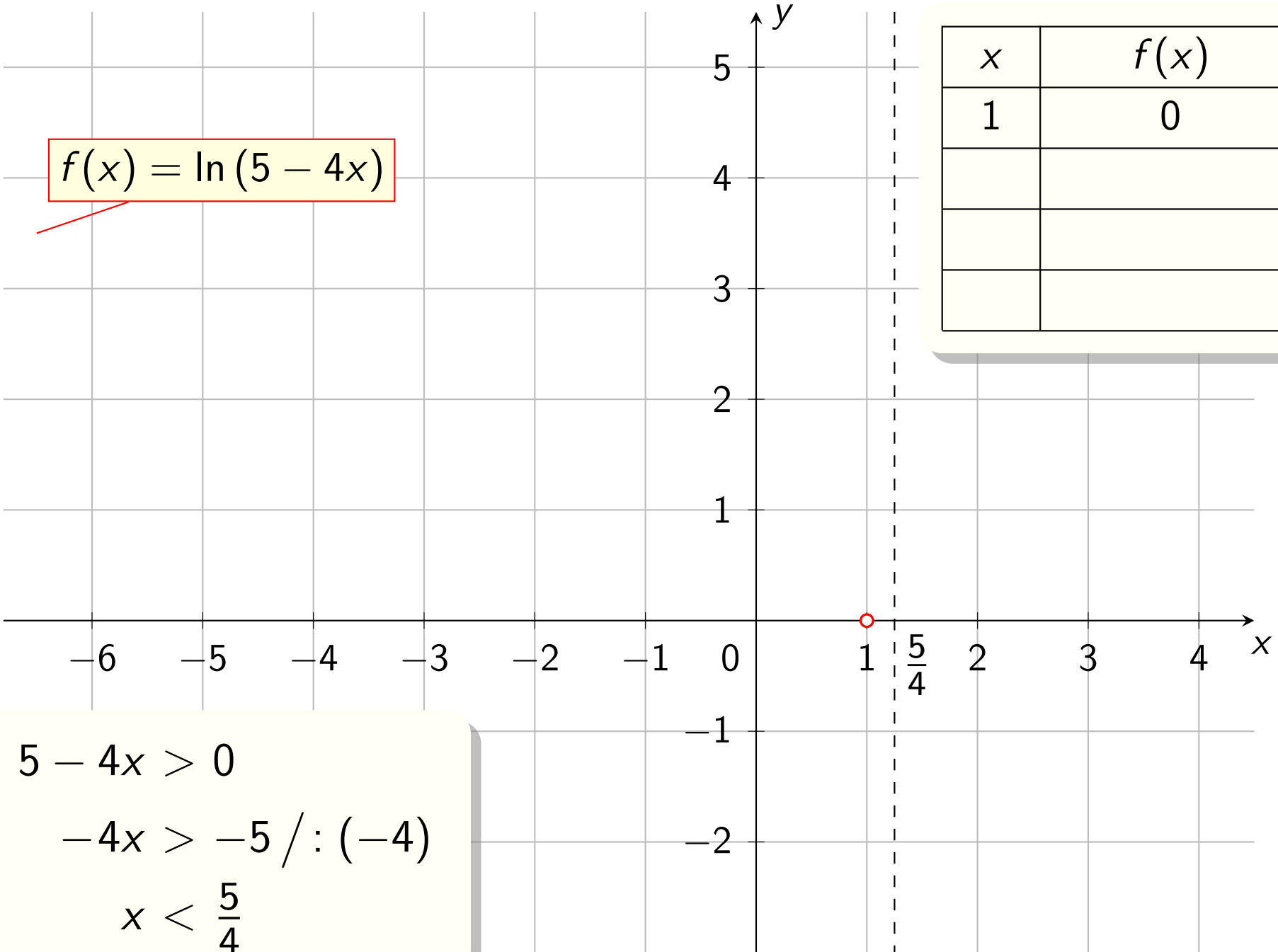
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	0

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



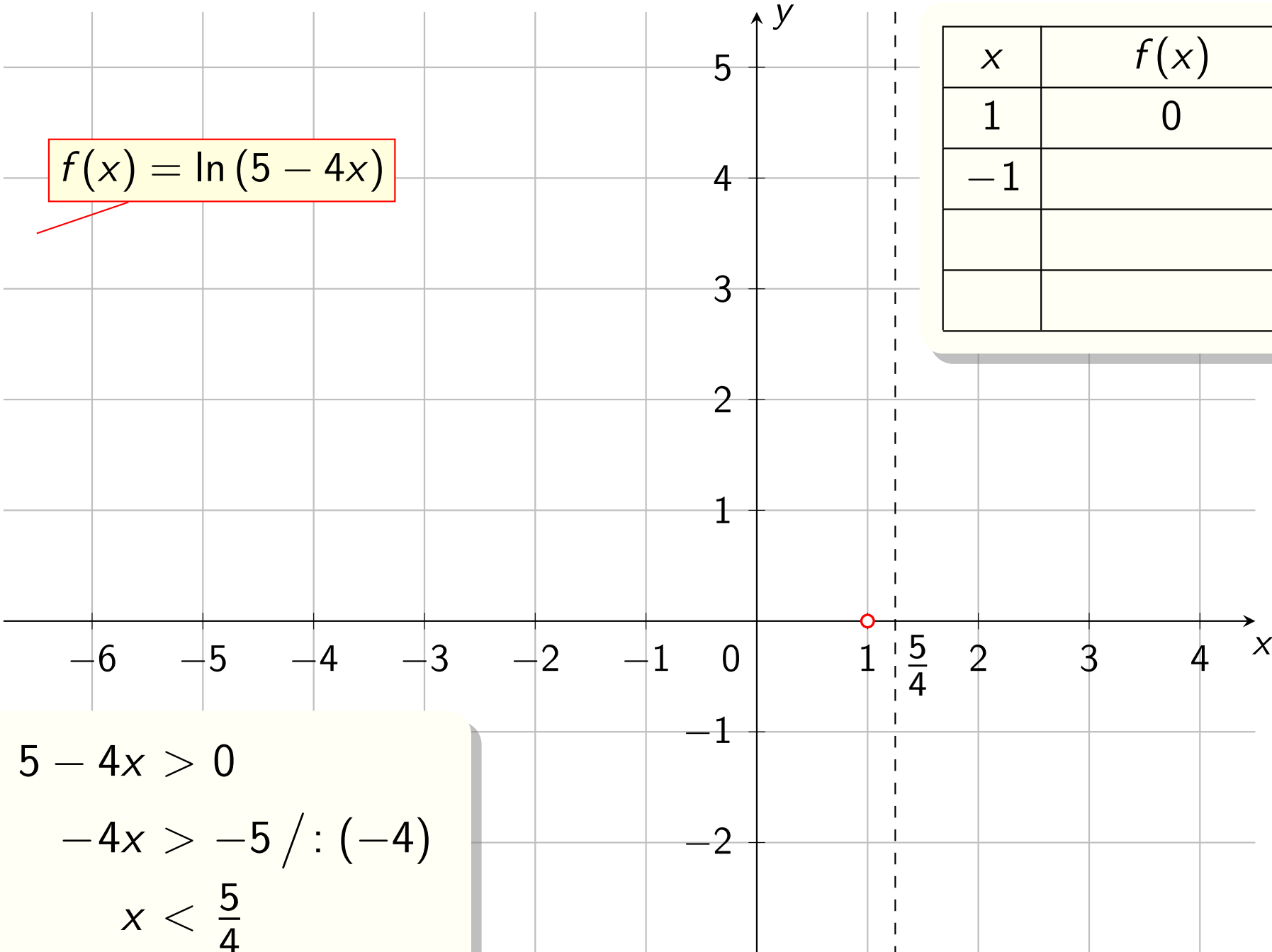
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	0

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



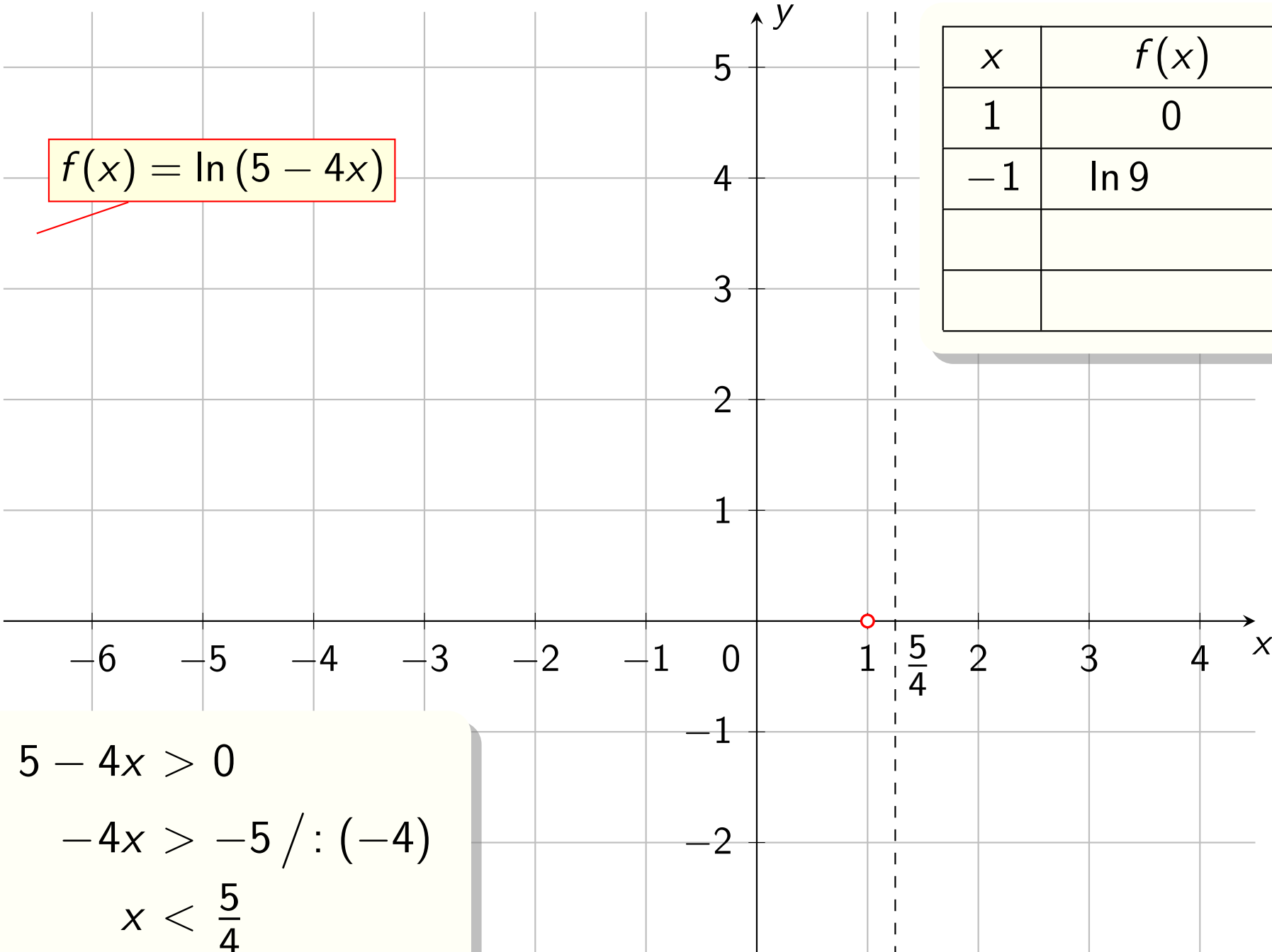
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	0
-1	

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



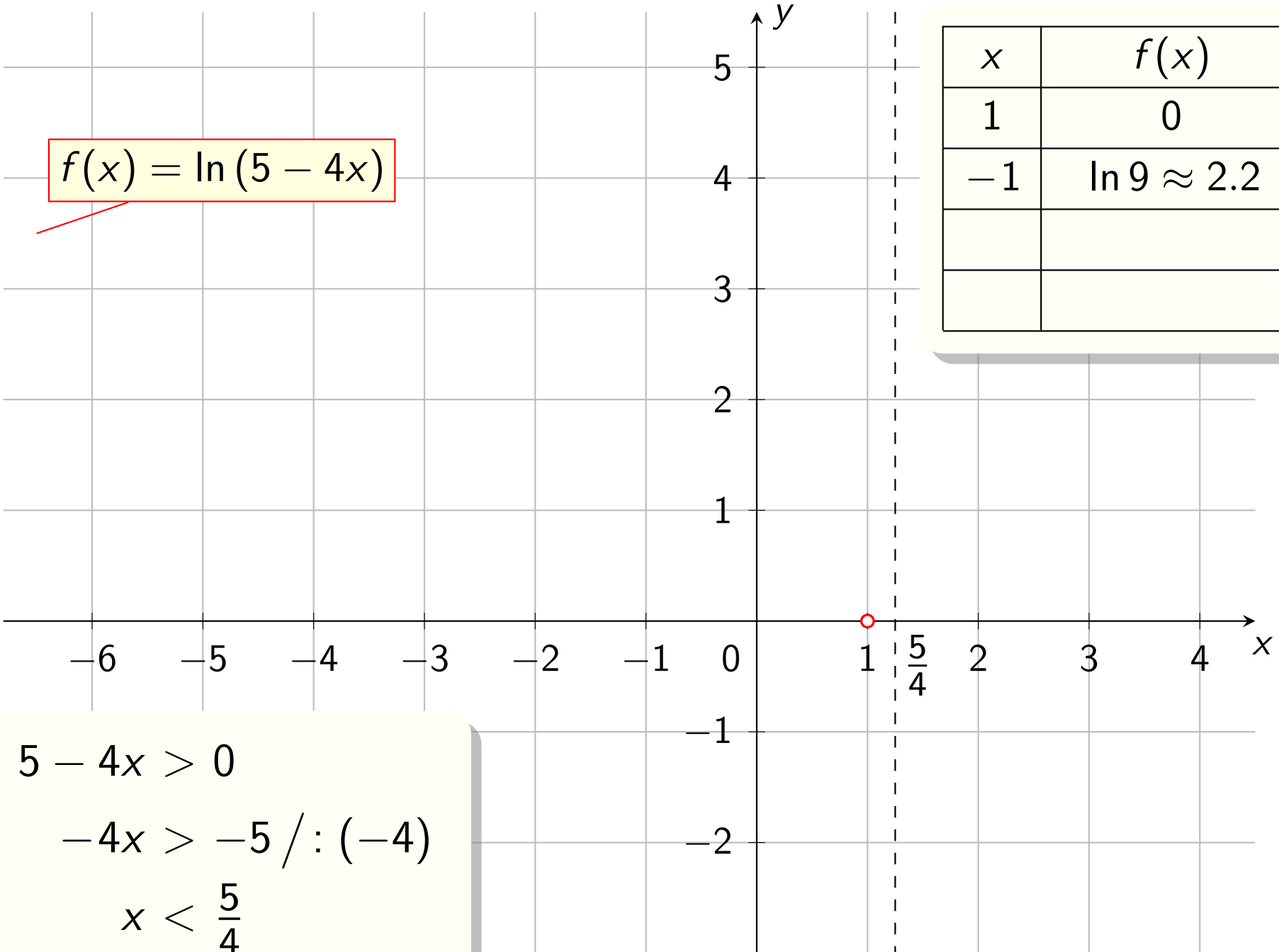
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	0
-1	$\ln 9$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$

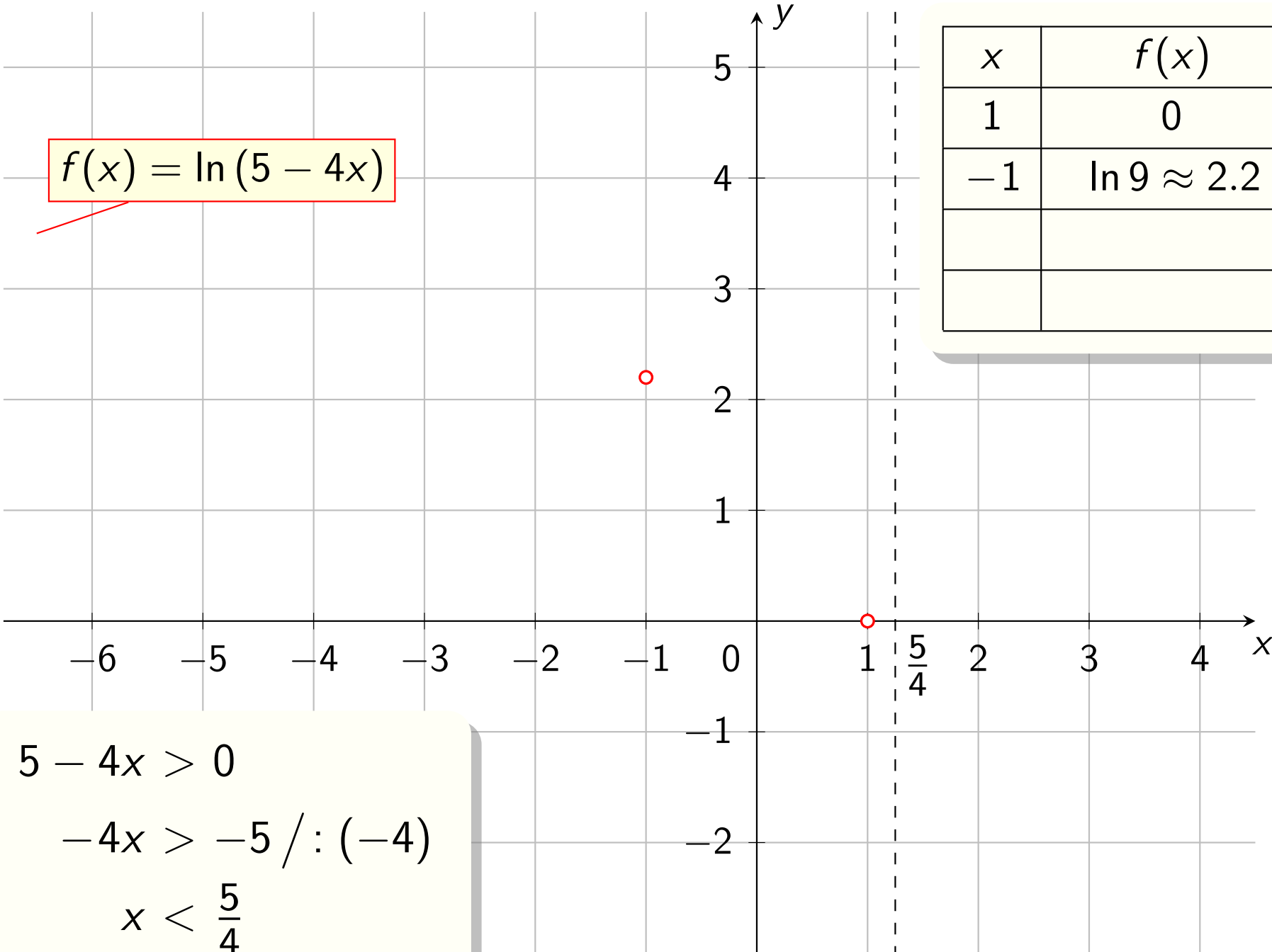


x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



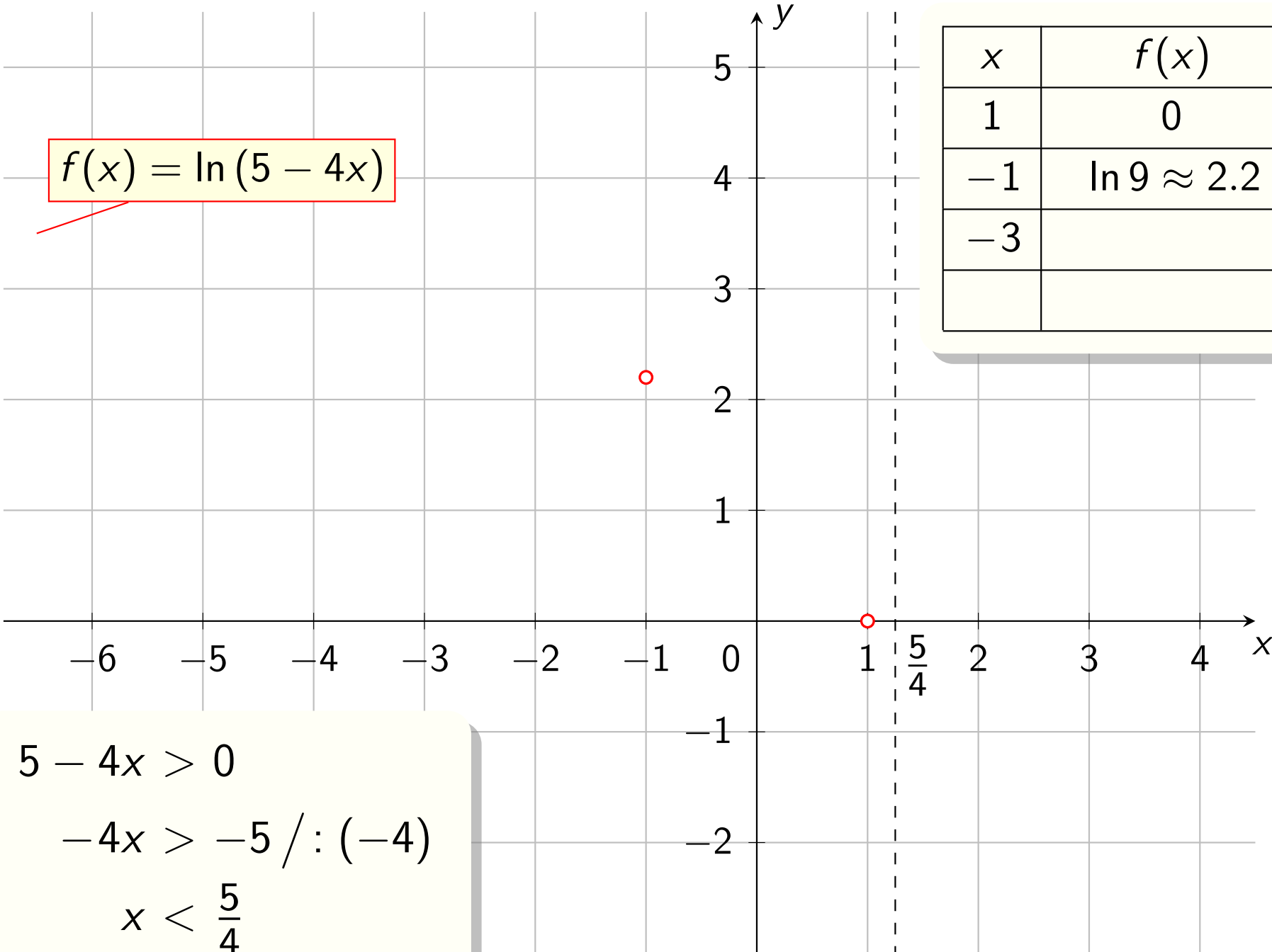
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



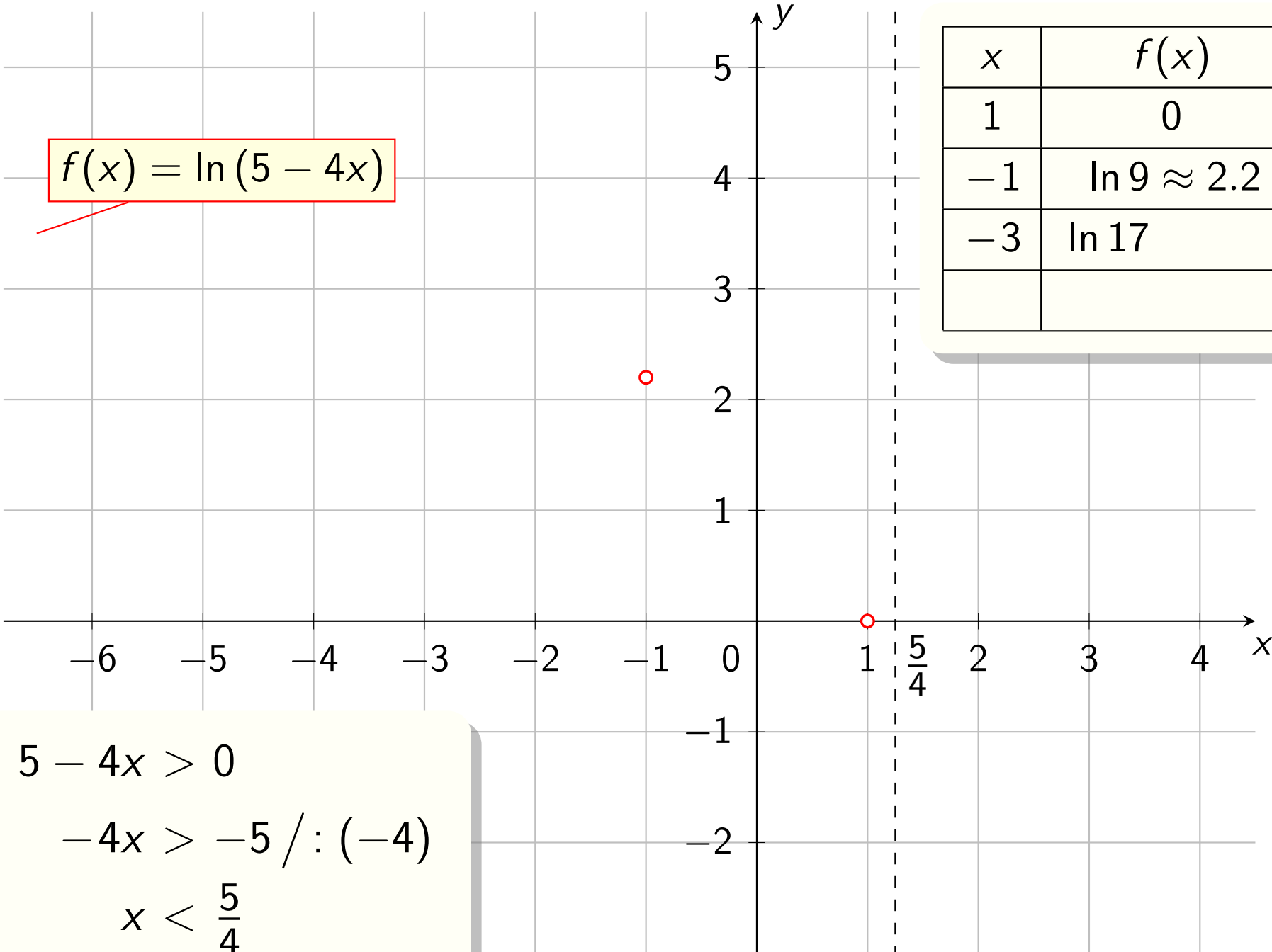
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$
-3	

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$

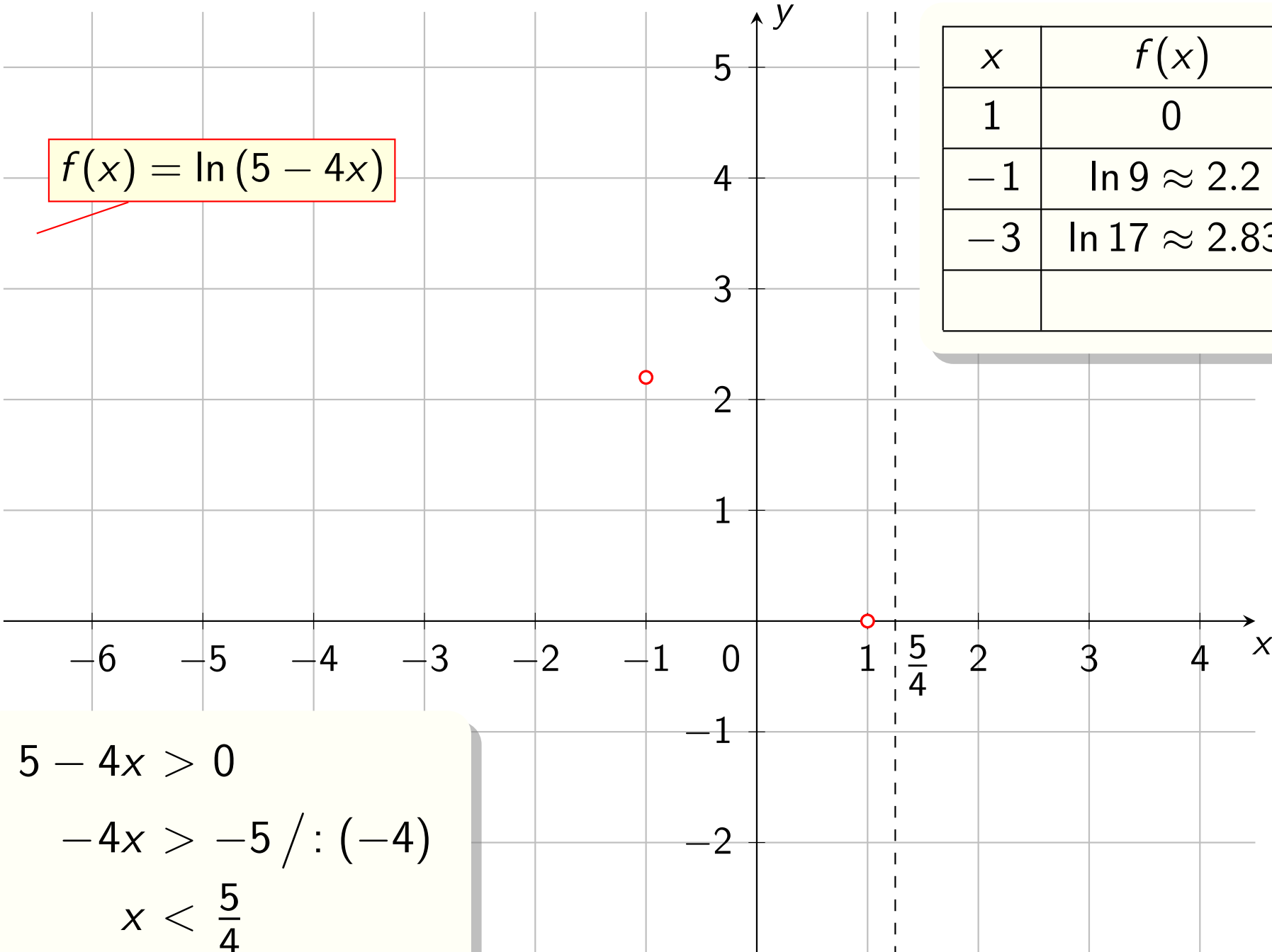


x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$
-3	$\ln 17$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



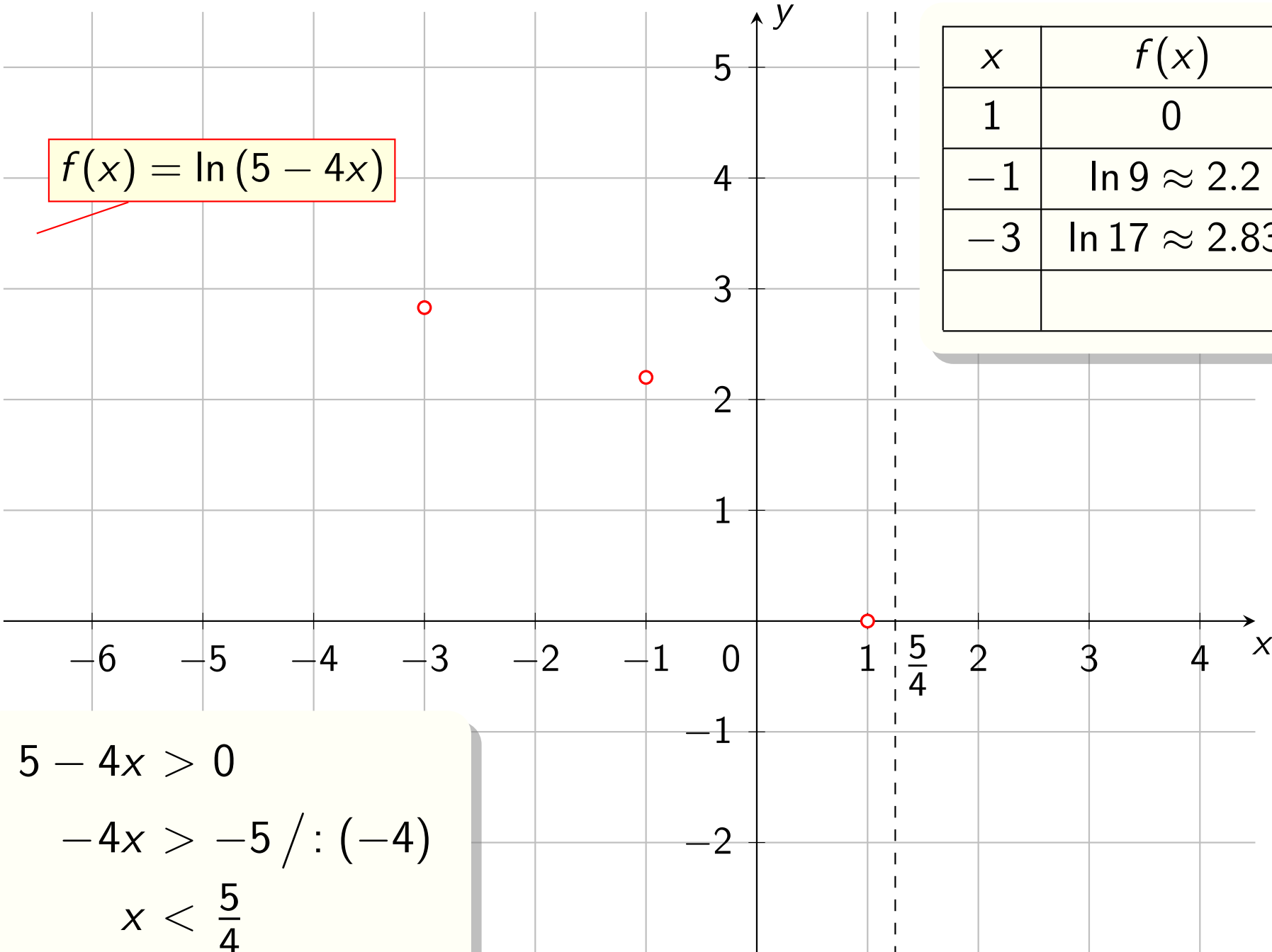
$f(x) = \ln(5 - 4x)$

x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$
-3	$\ln 17 \approx 2.83$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$

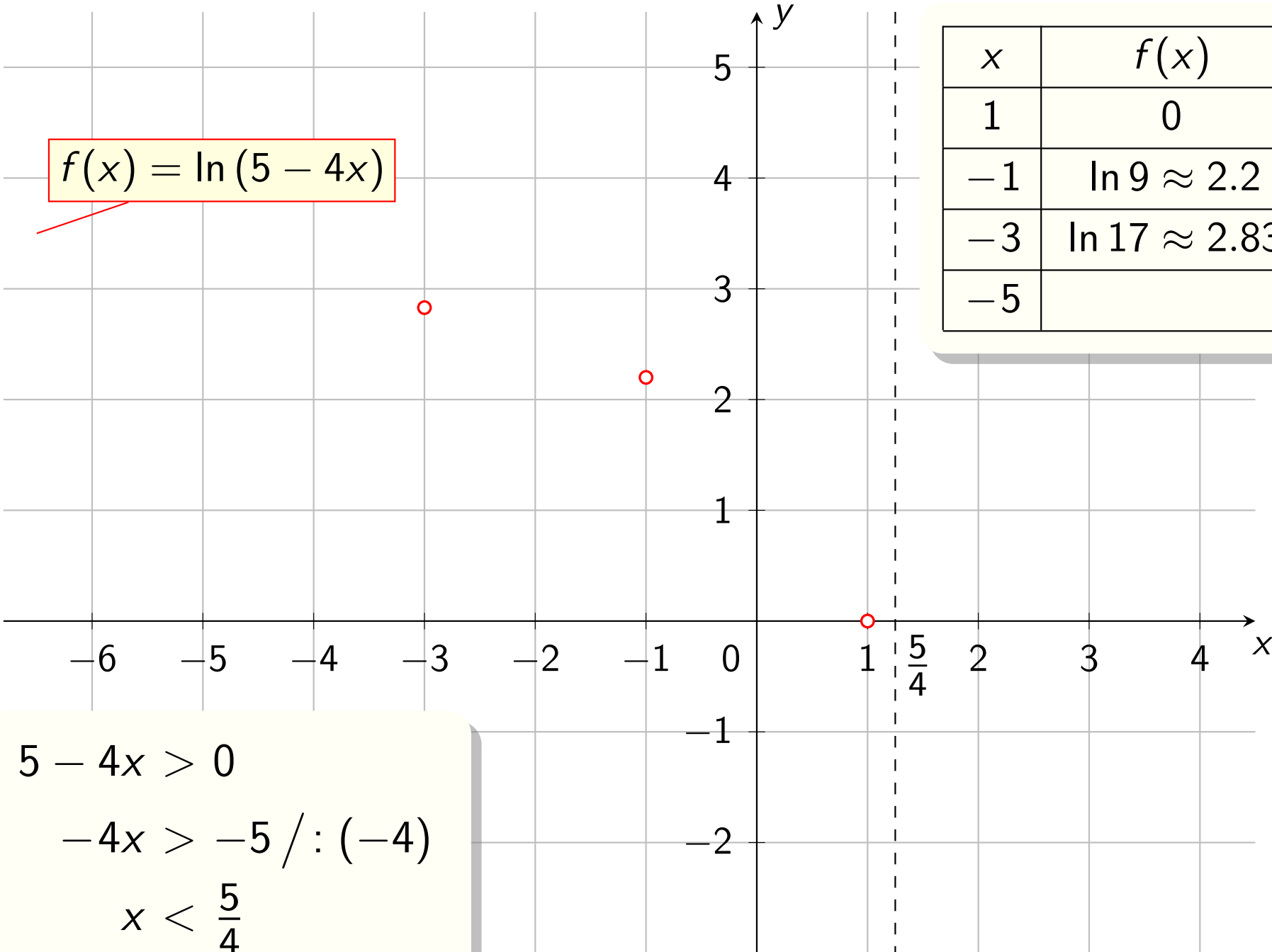


x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$
-3	$\ln 17 \approx 2.83$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$

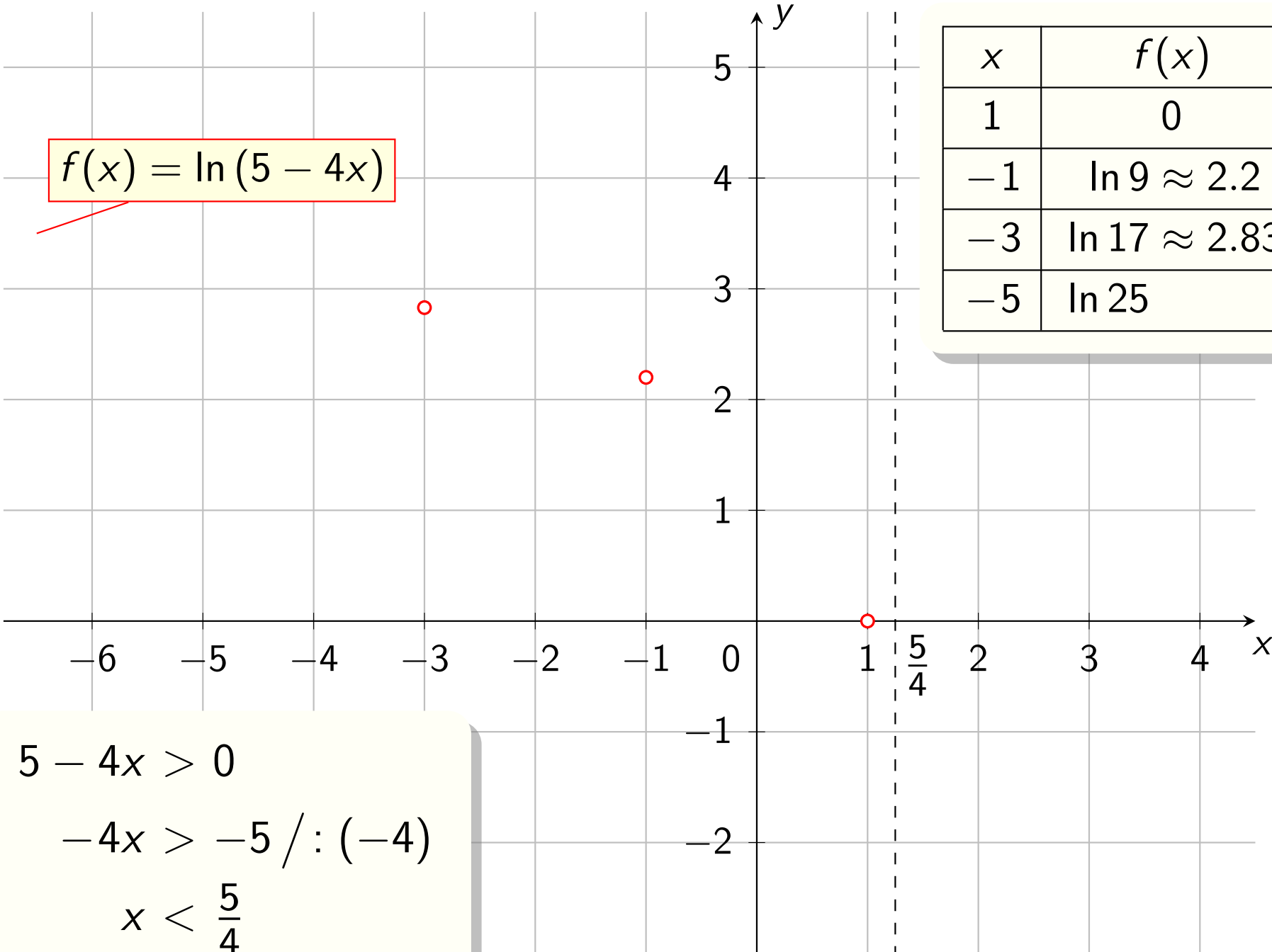


x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$
-3	$\ln 17 \approx 2.83$
-5	

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$

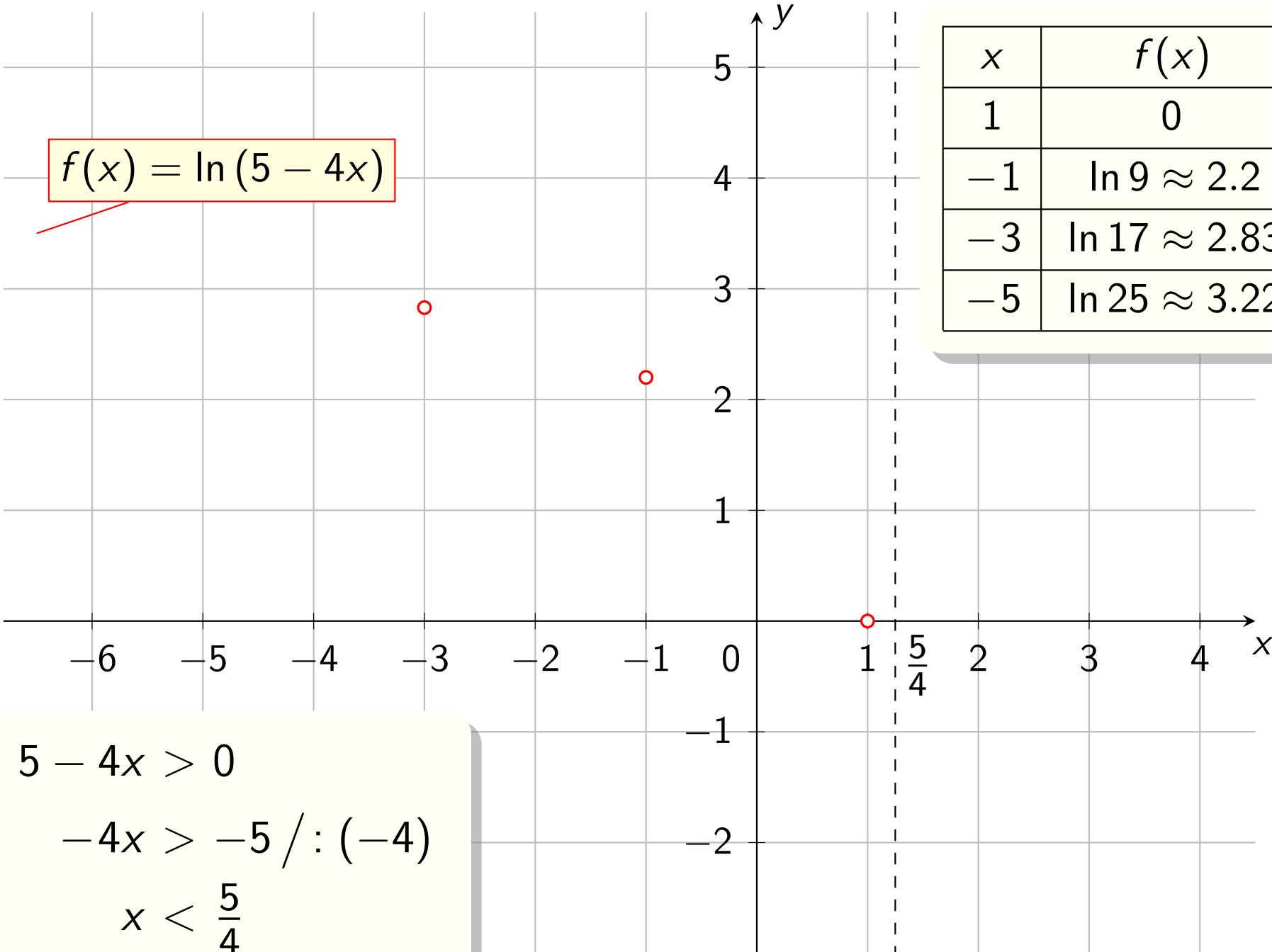


x	$f(x)$
1	0
-1	$\ln 9 \approx 2.2$
-3	$\ln 17 \approx 2.83$
-5	$\ln 25$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$



x	$f(x)$
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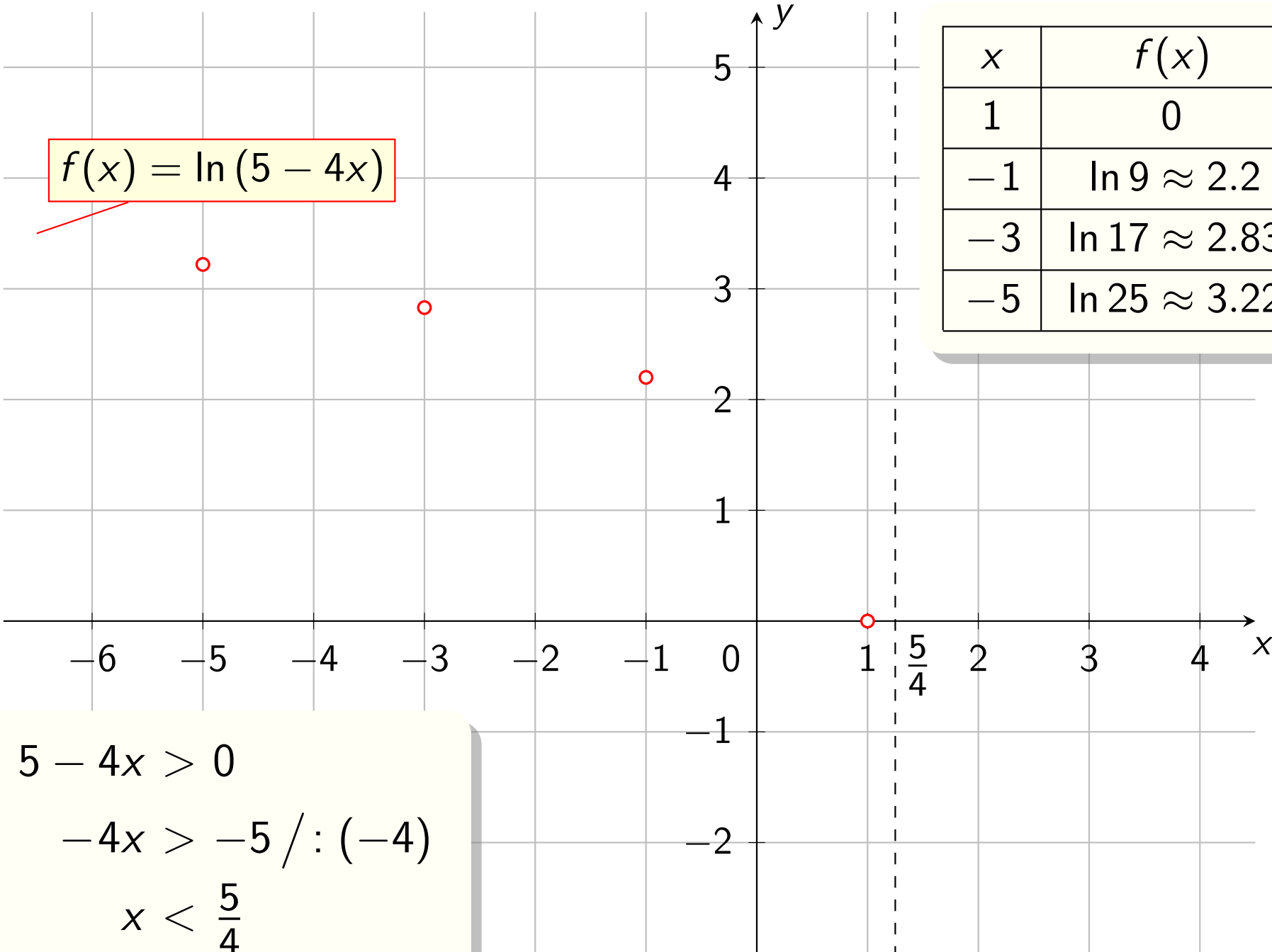

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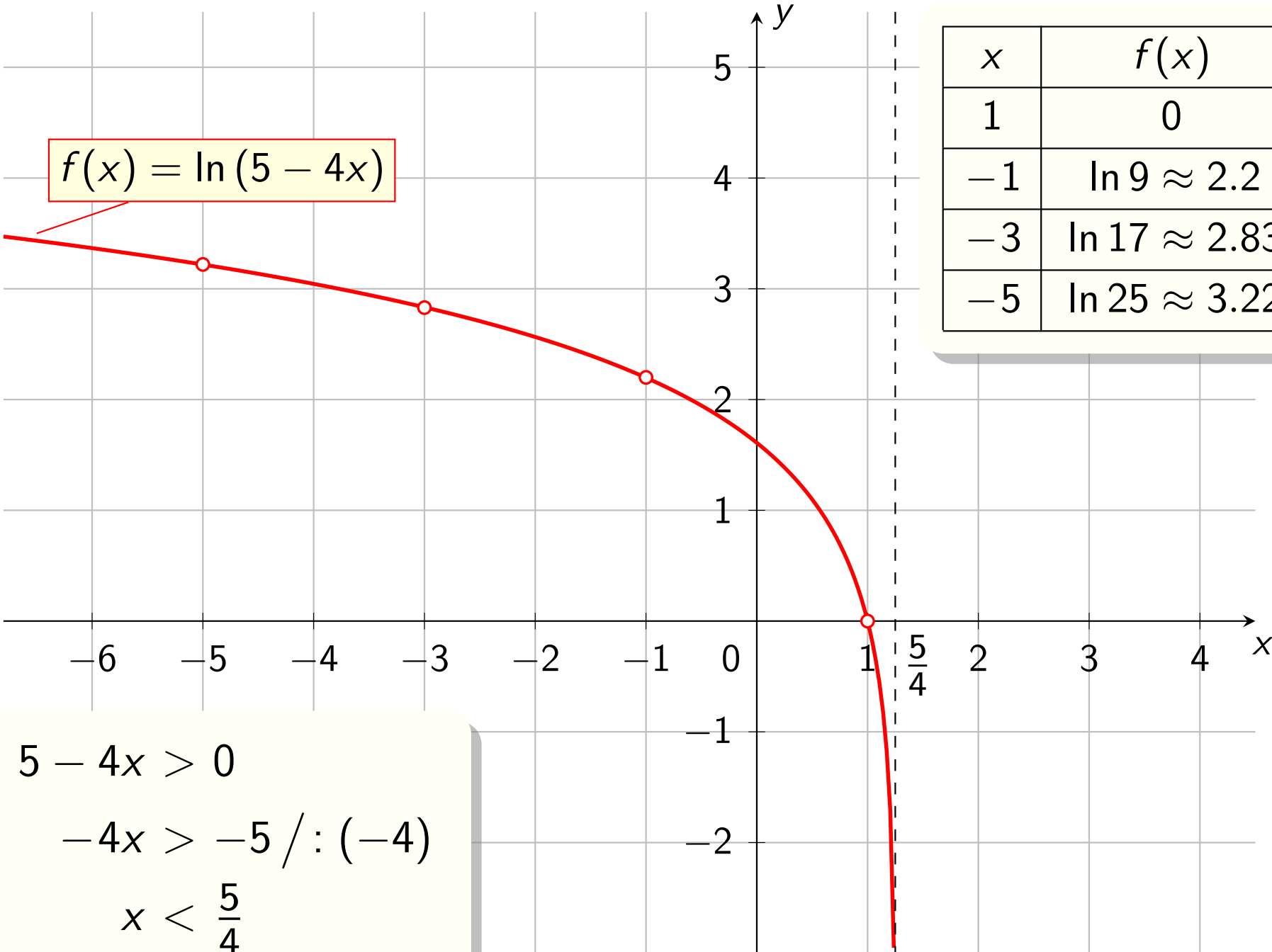

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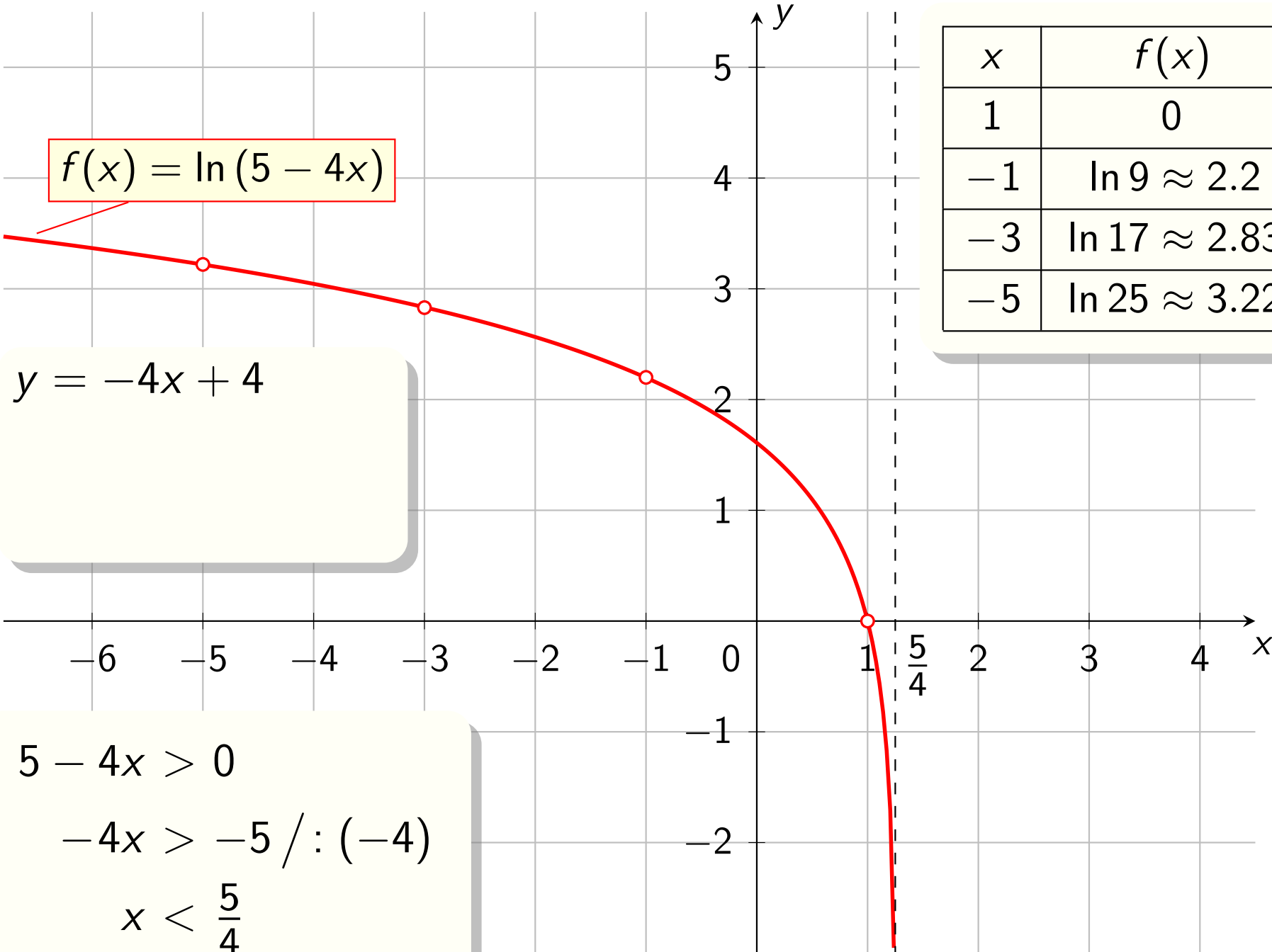

x	$f(x)$
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$y = -4x + 4$

$$5 - 4x > 0$$

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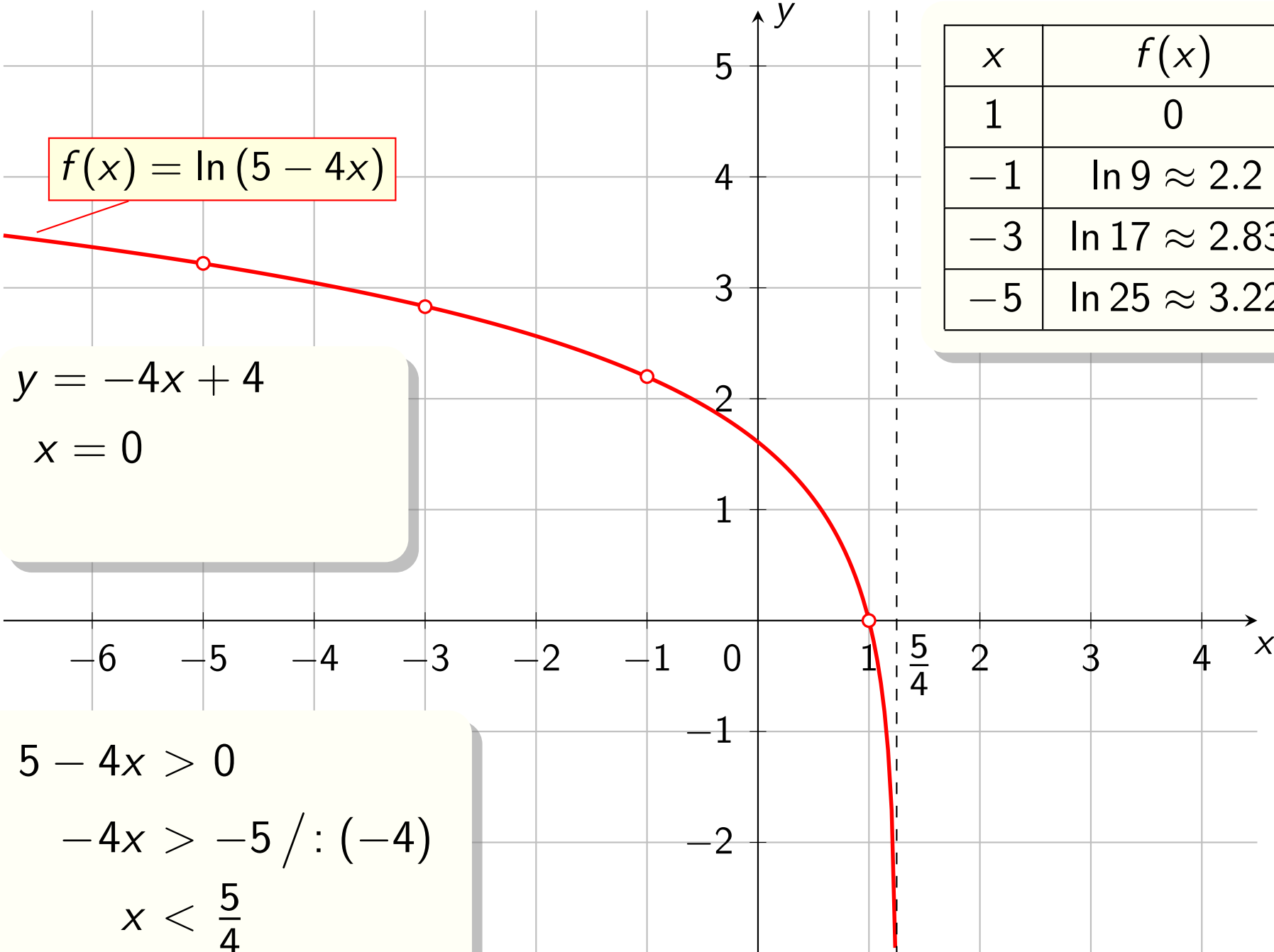
$$x < \frac{5}{4}$$



x	$f(x)$
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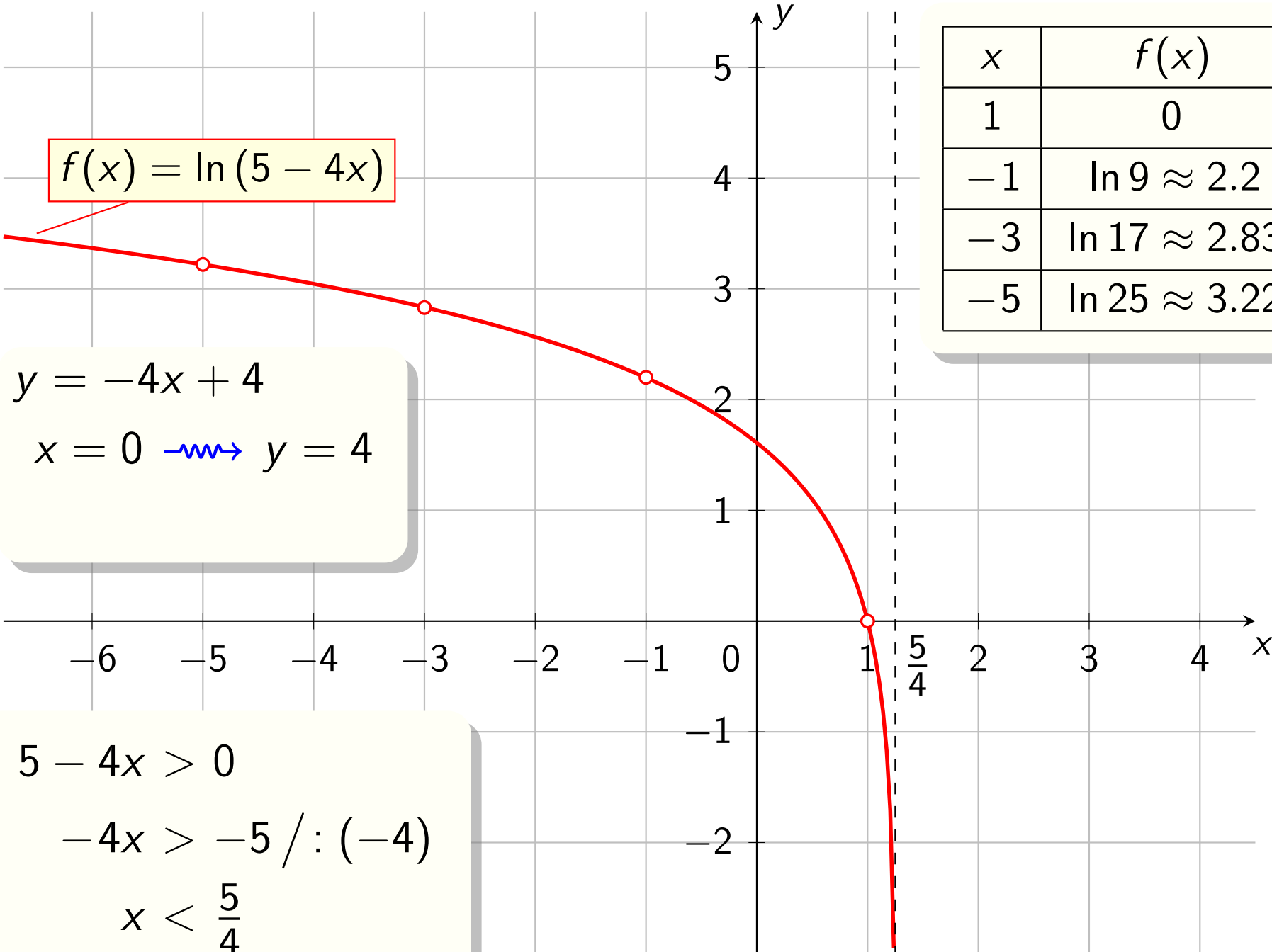
-3	$\ln 17 \approx 2.83$
-5	$\ln 25 \approx 3.22$

$$y = -4x + 4$$
$$x = 0$$

$$5 - 4x > 0$$
$$-4x > -5 \,/ : (-4)$$
$$x < \frac{5}{4}$$



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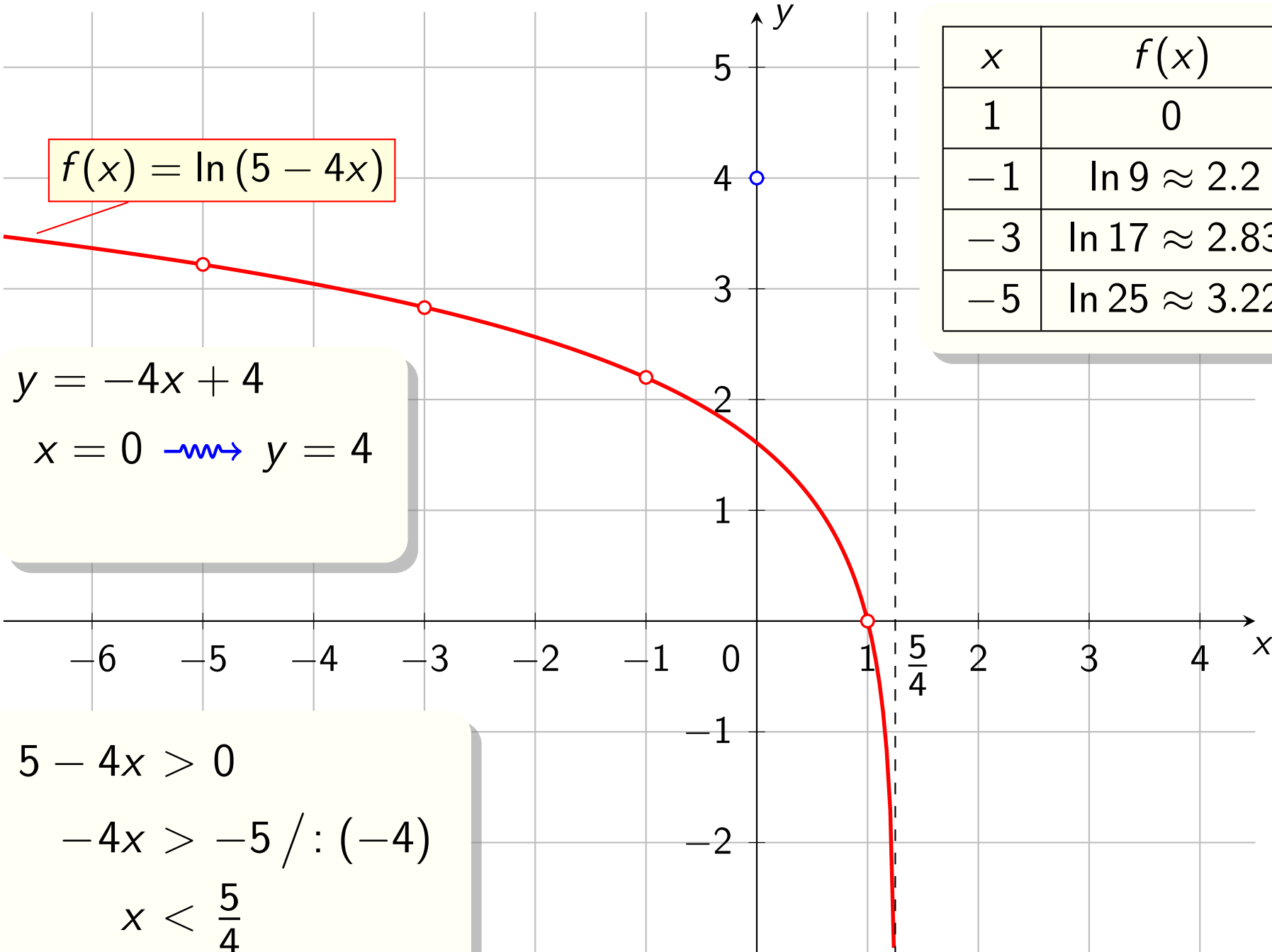

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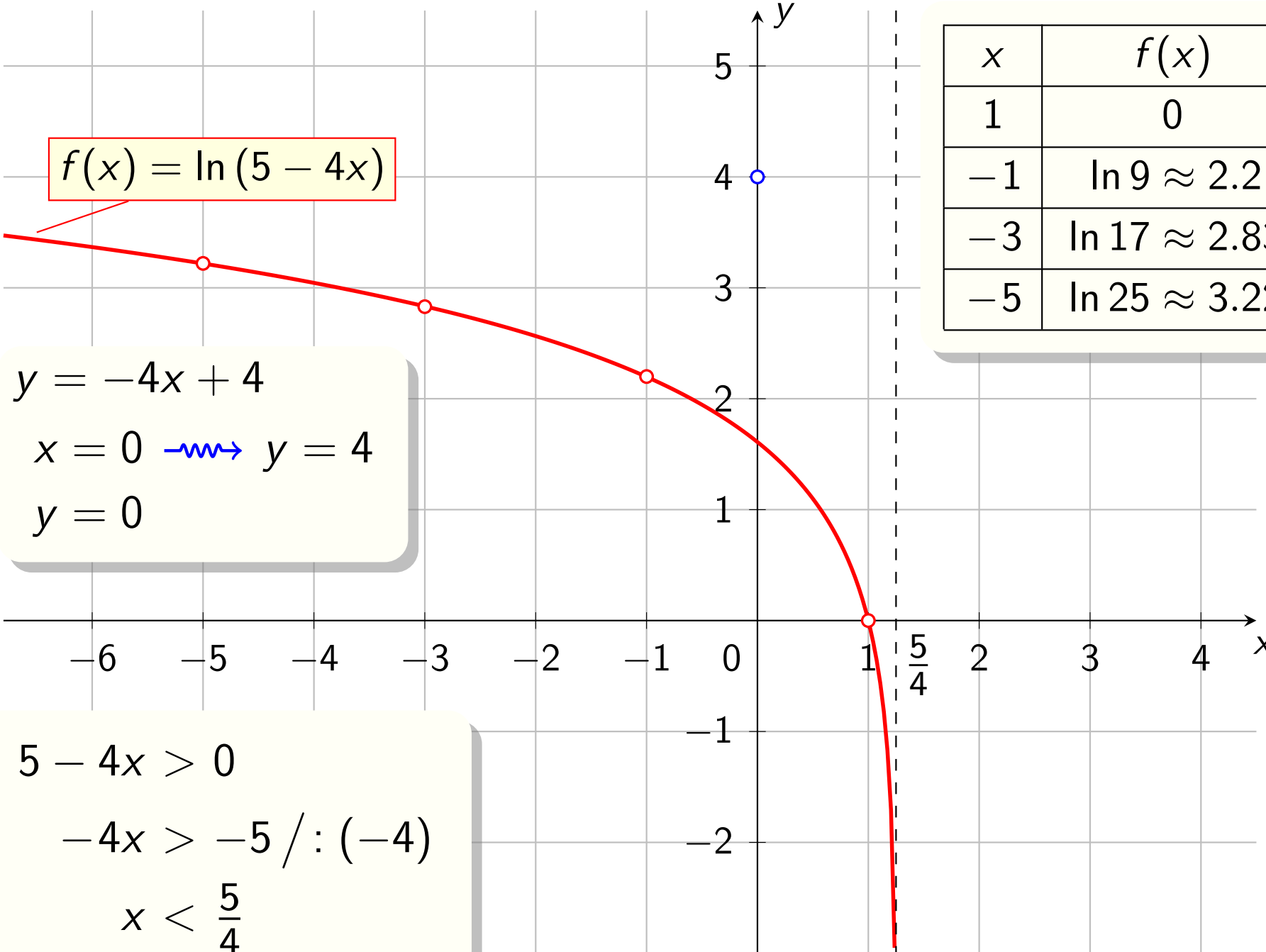

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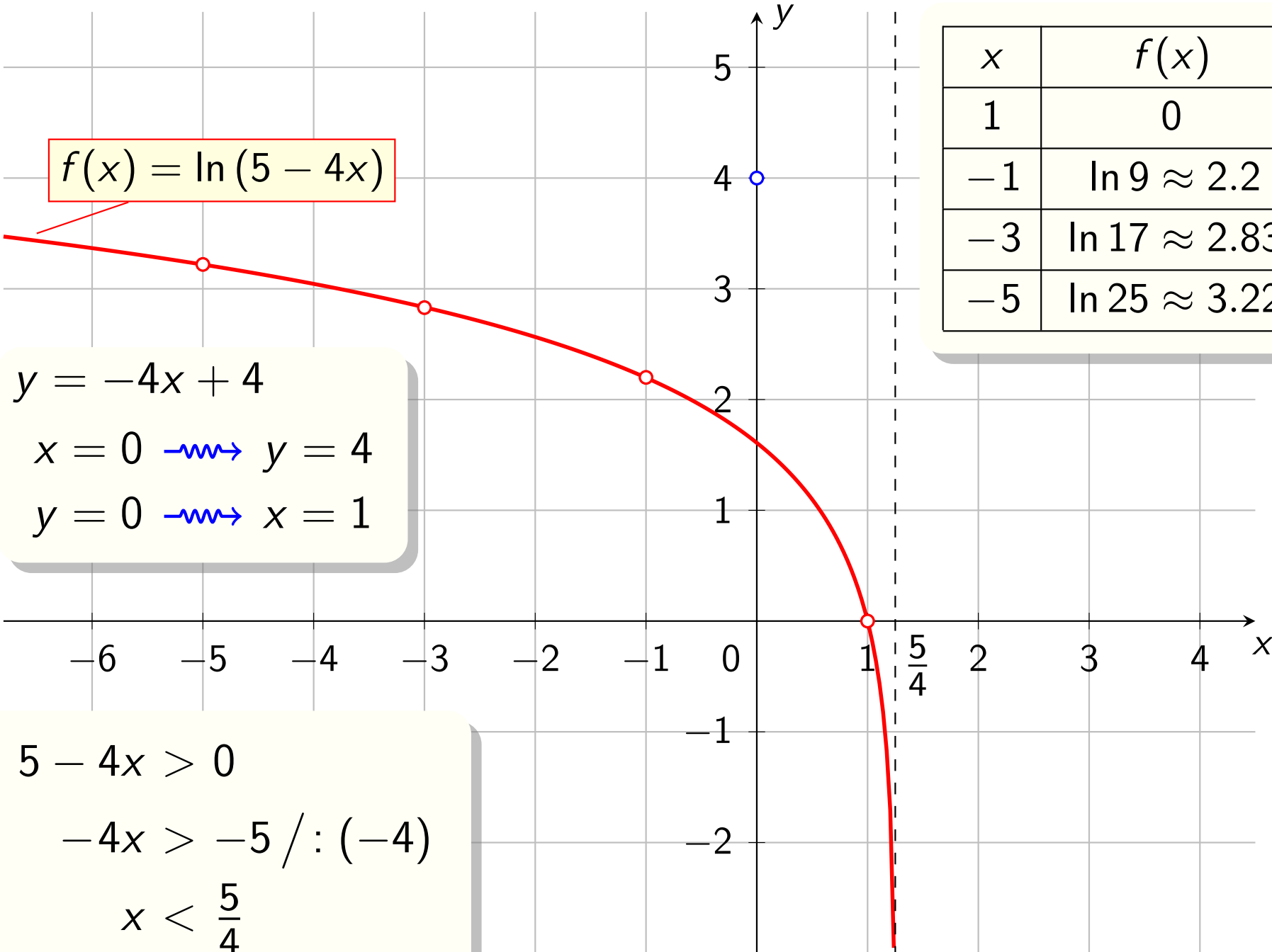

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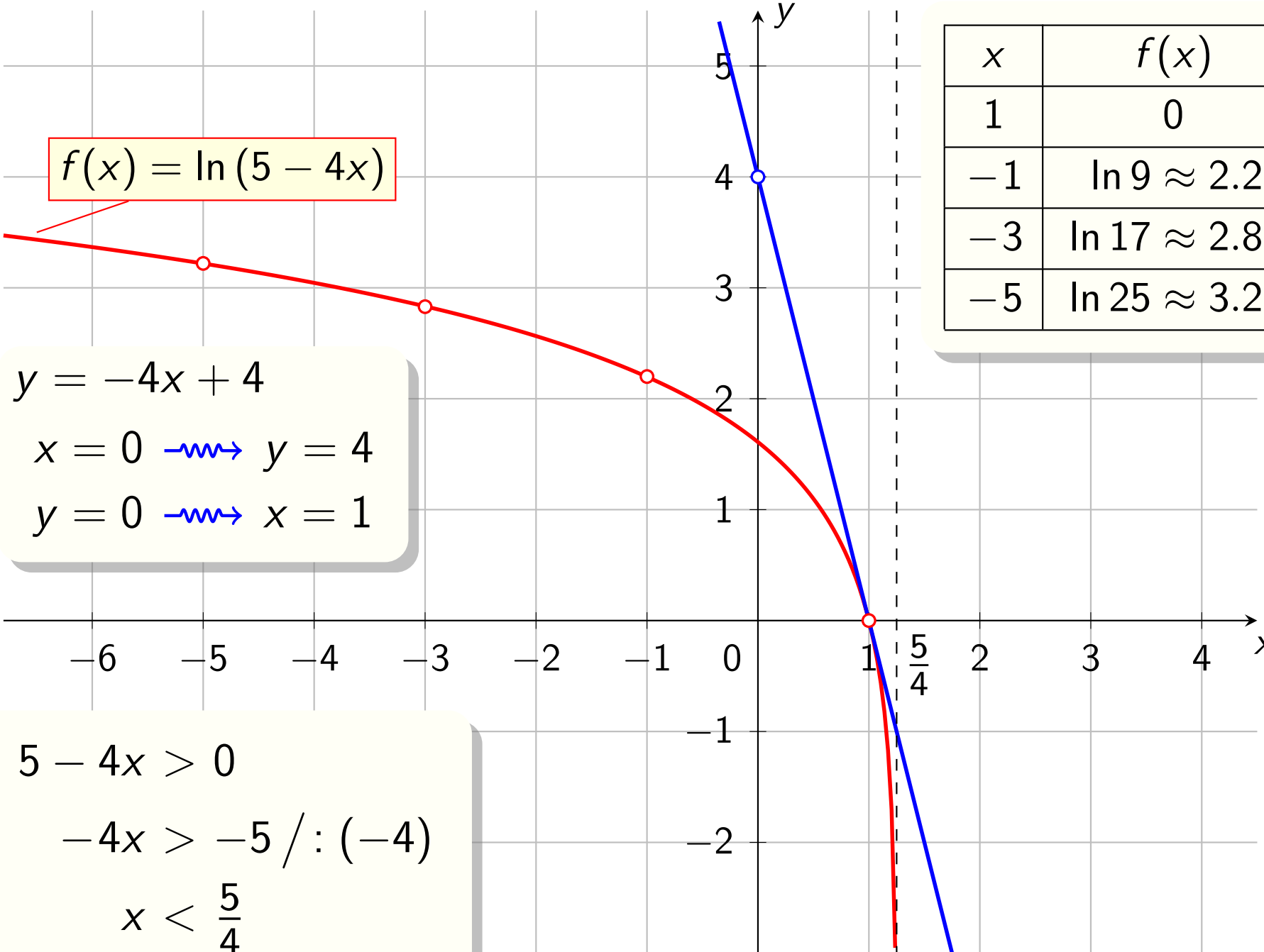

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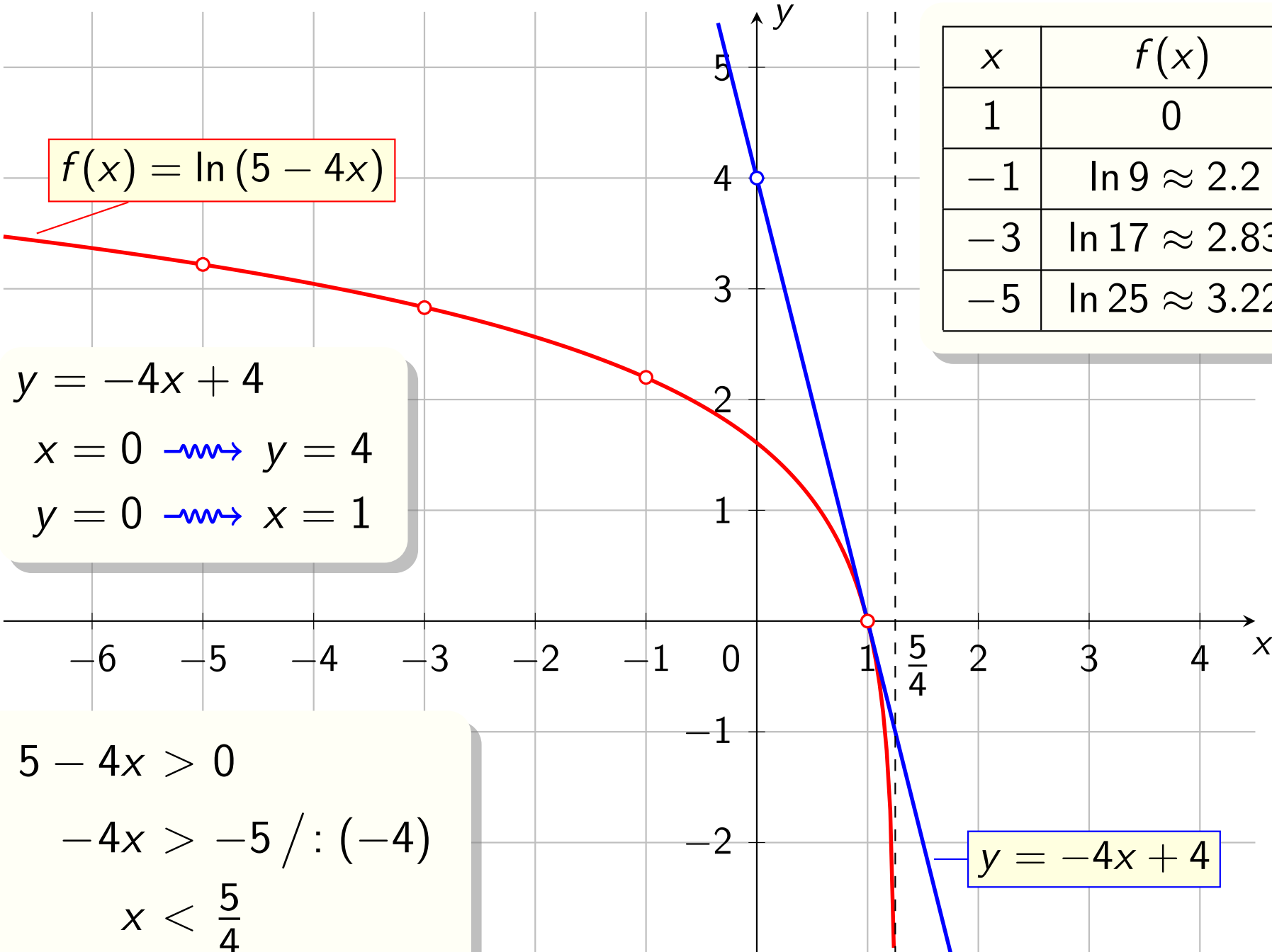

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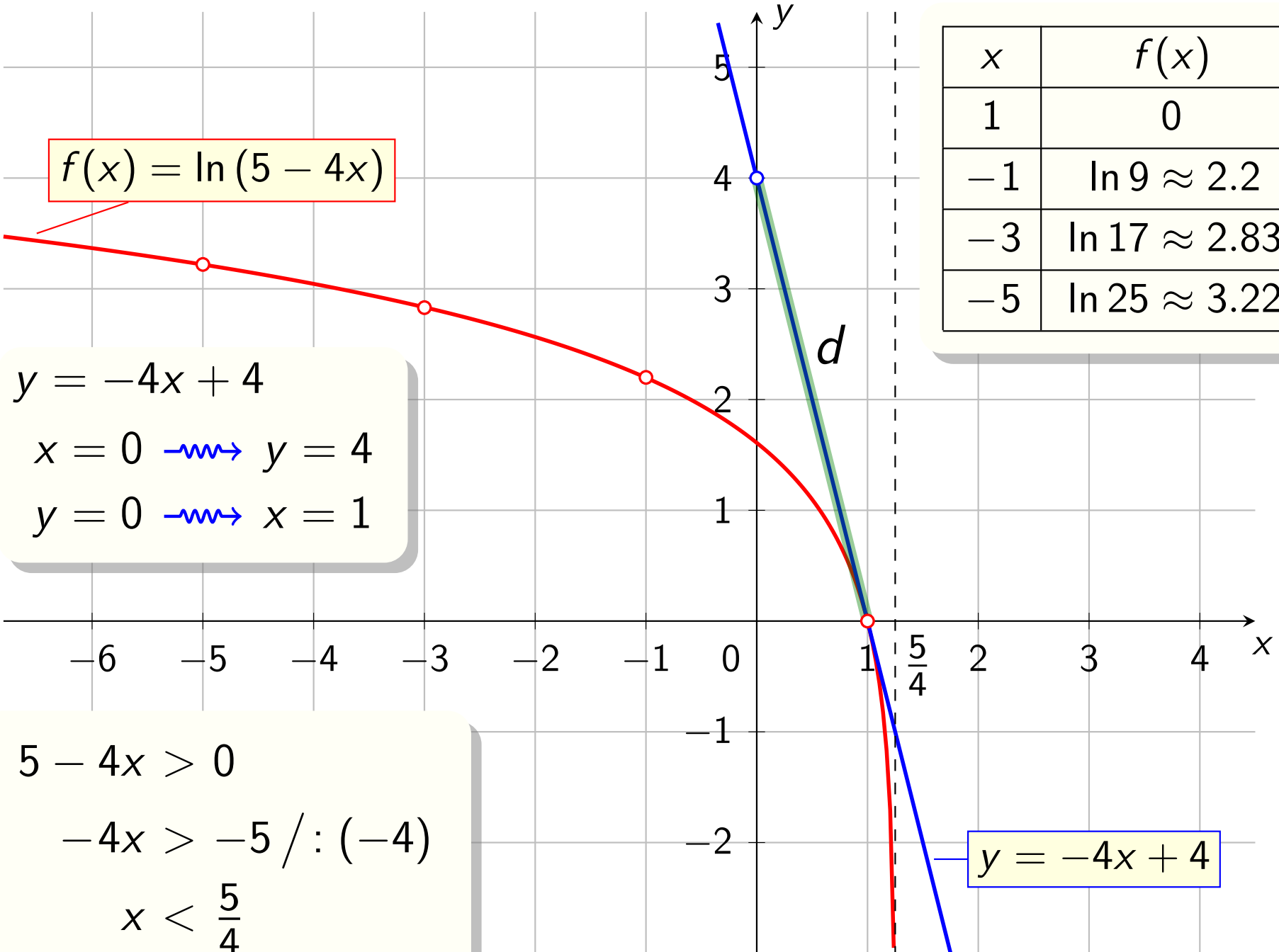

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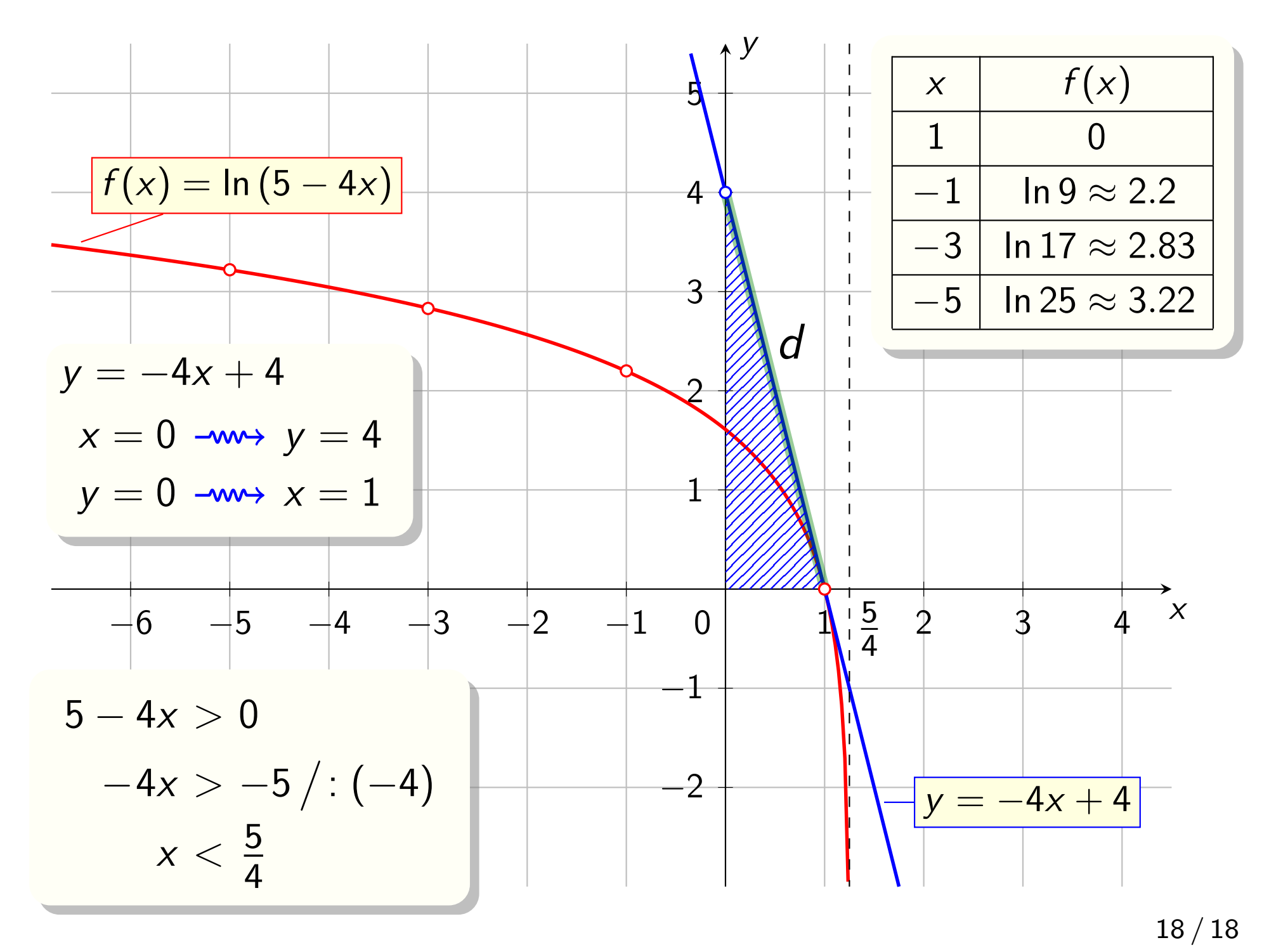

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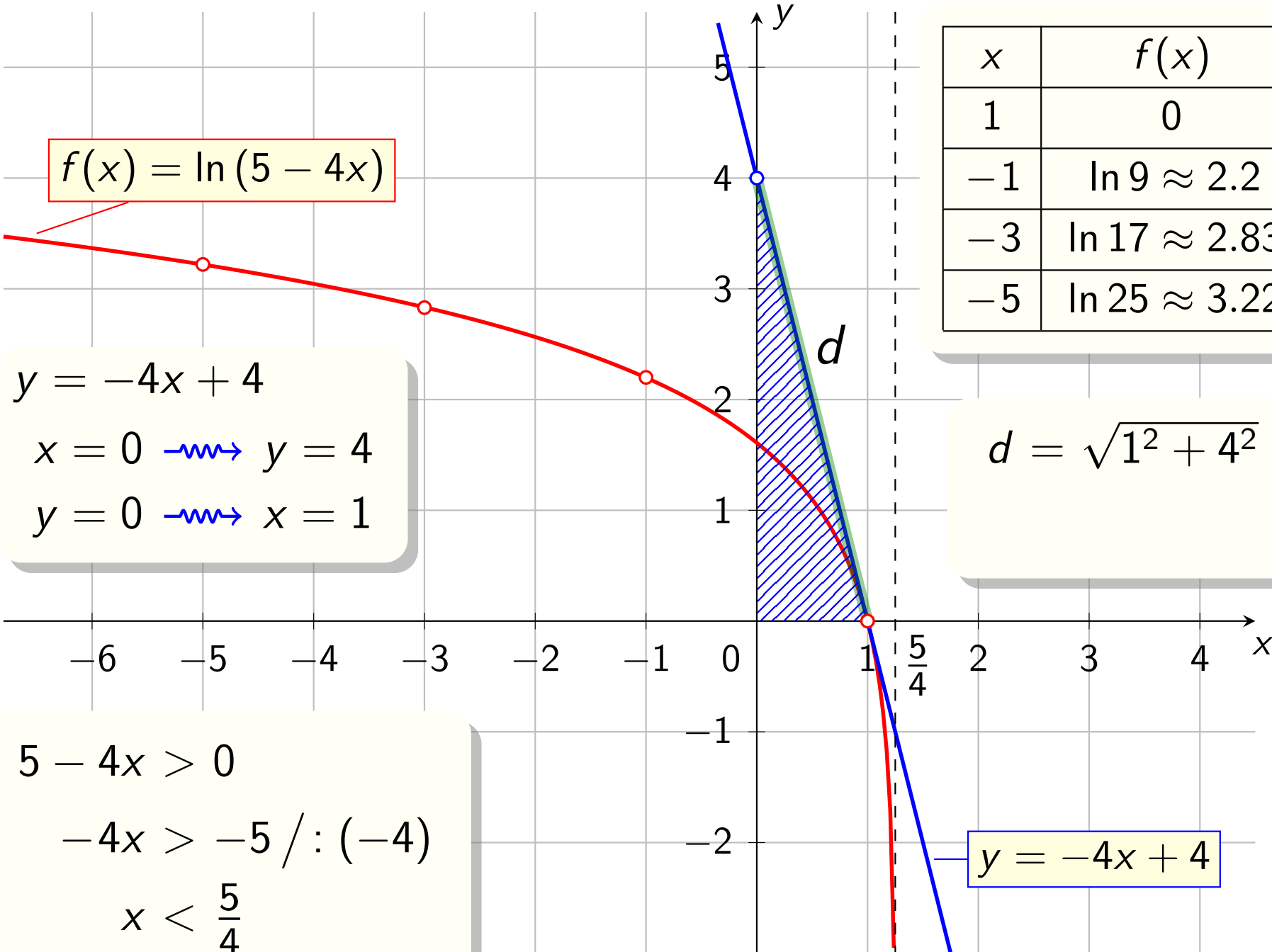

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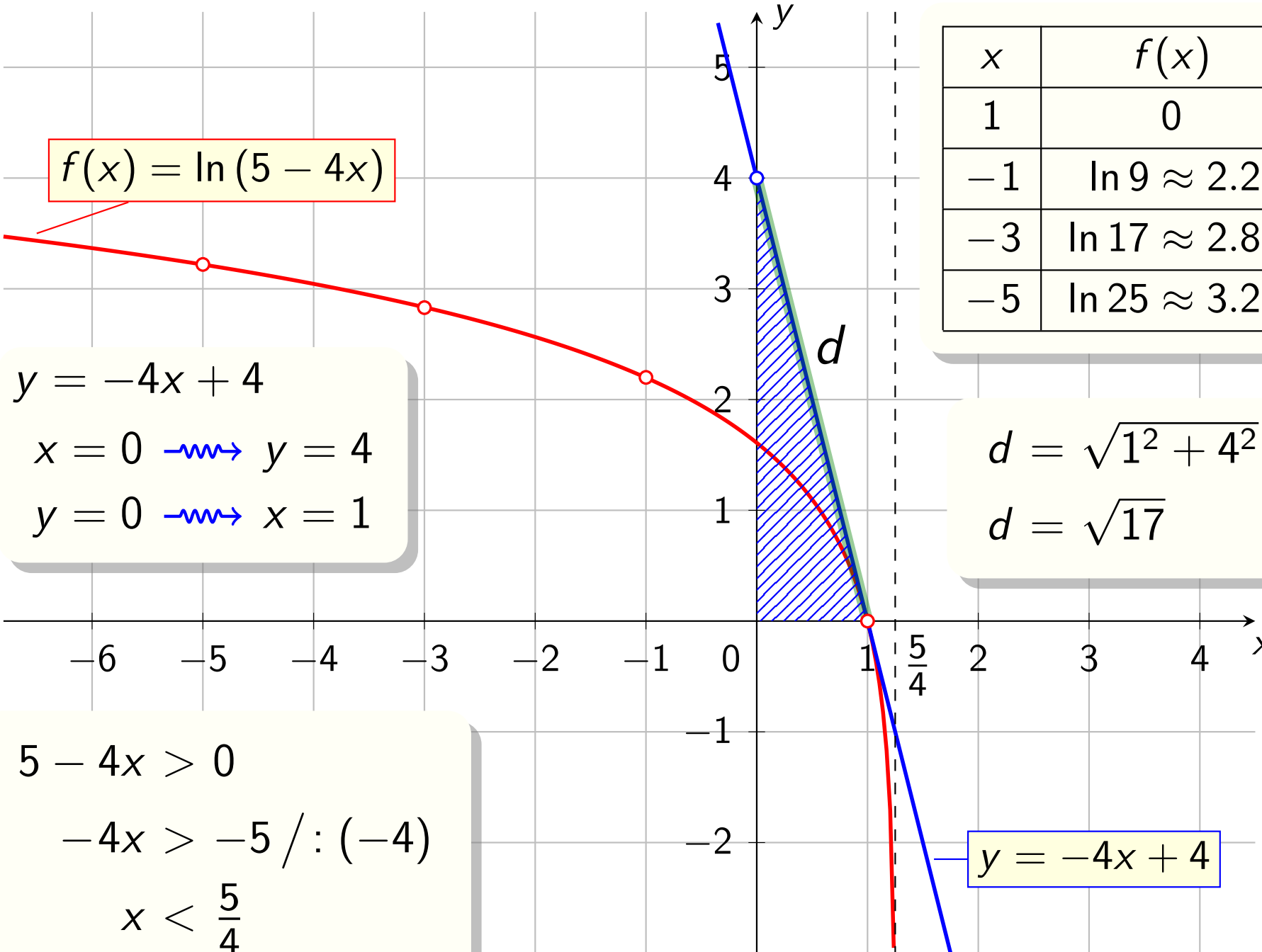

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$$y = -4x + 4$$

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$$y = 0 \rightsquigarrow x = 1$$

$$d = \sqrt{1^2 + 4^2}$$

$$d = \sqrt{17}$$

$$5 - 4x > 0$$

$$-4x > -5 \,/ : (-4)$$

$$x < \frac{5}{4}$$