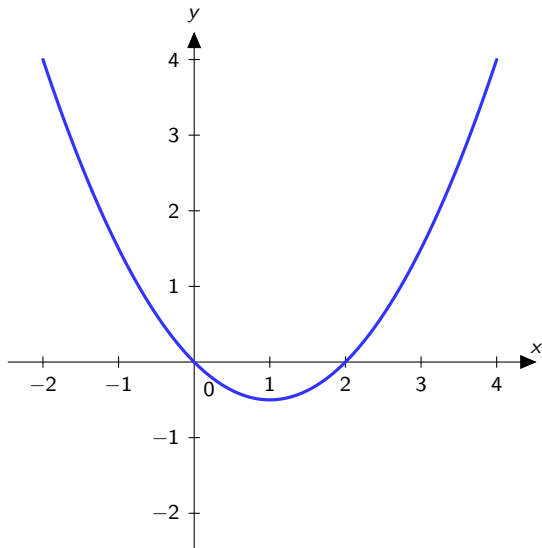


Differentialgleichungen - ein visueller Zugang



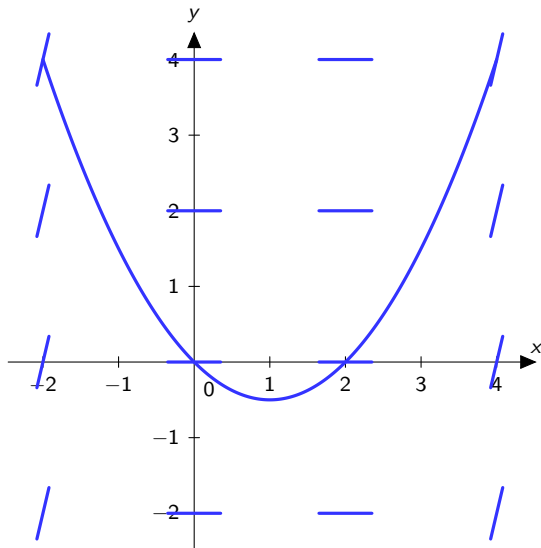
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



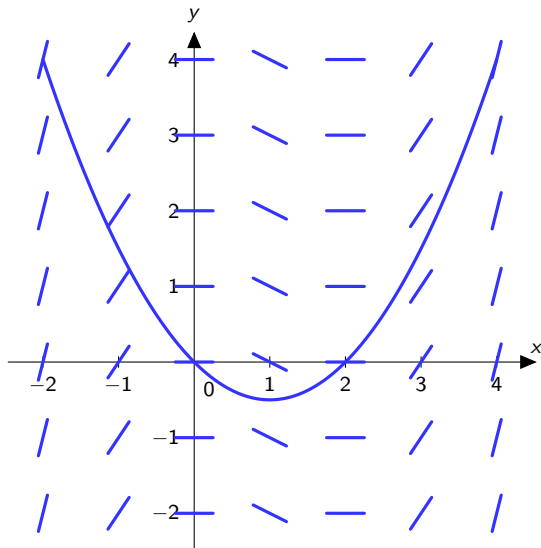
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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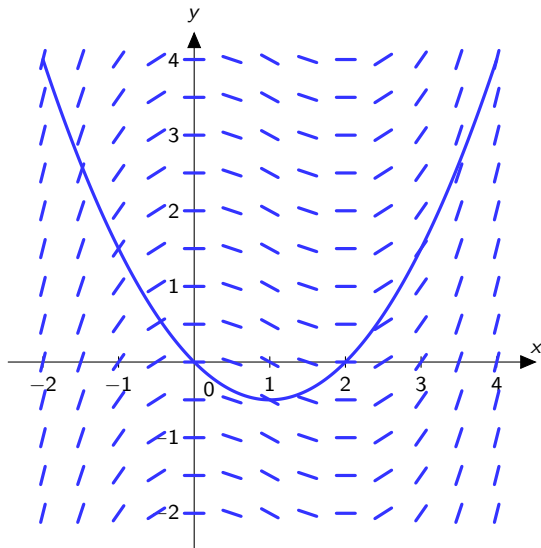
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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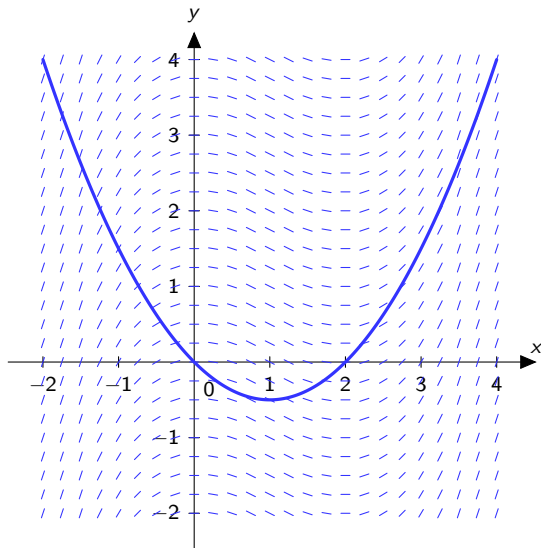
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



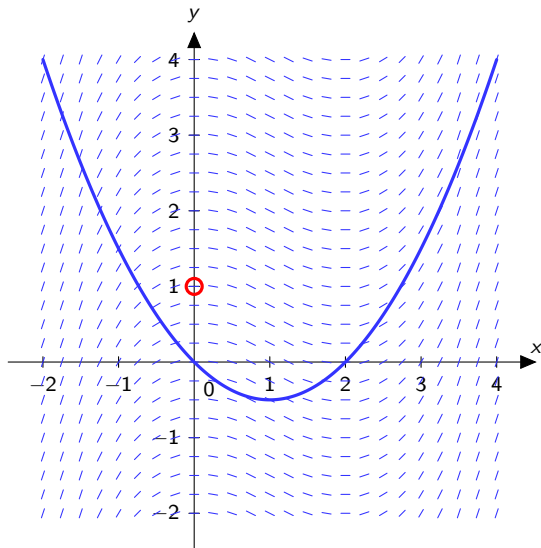
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



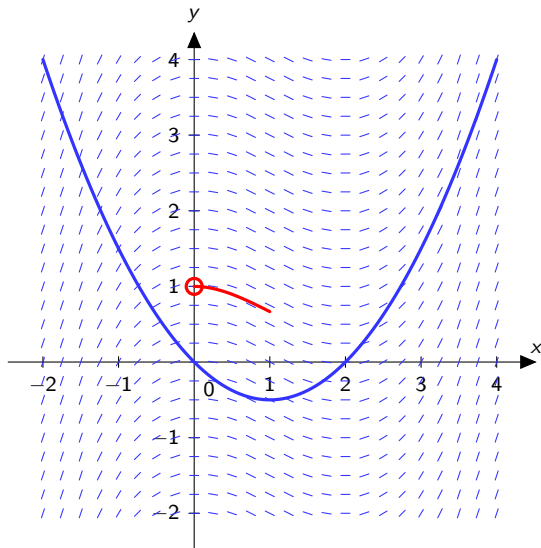
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



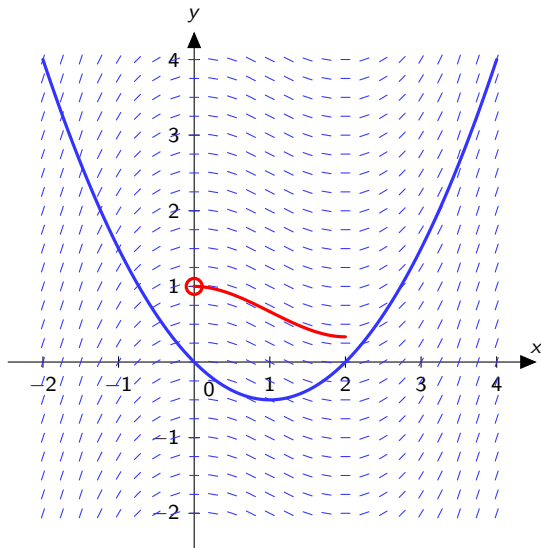
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



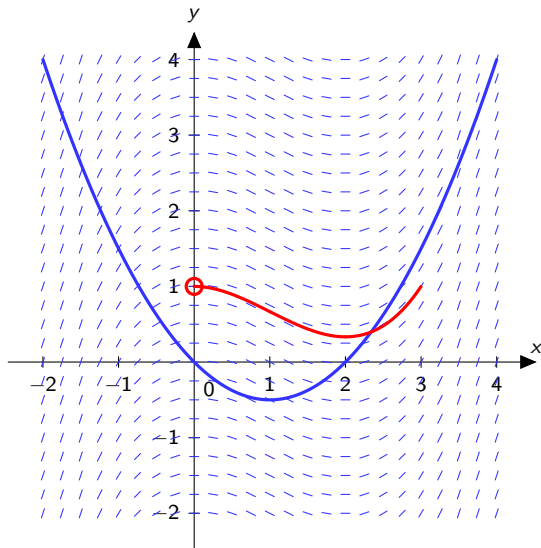
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



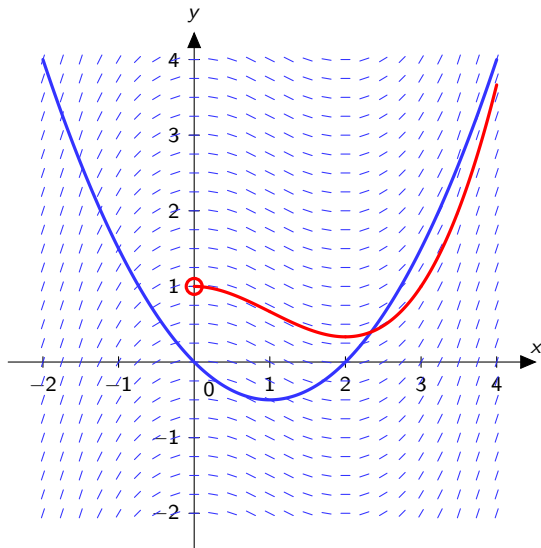
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



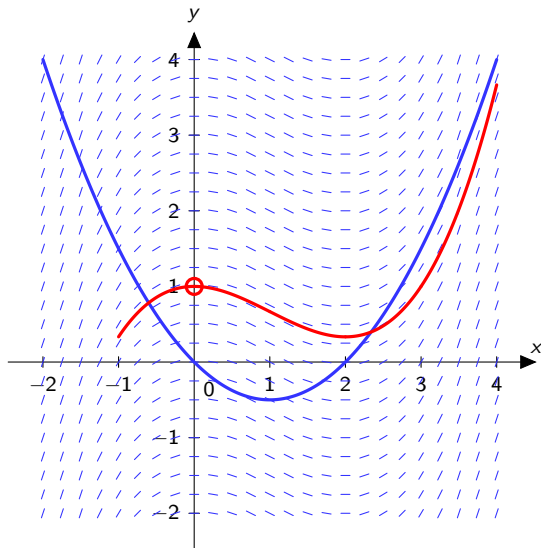
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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



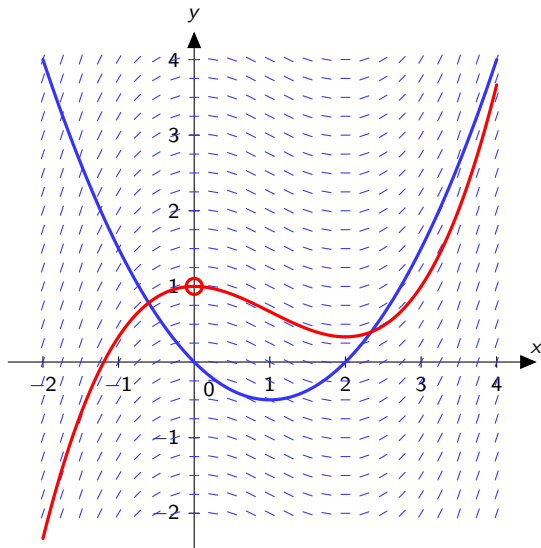
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

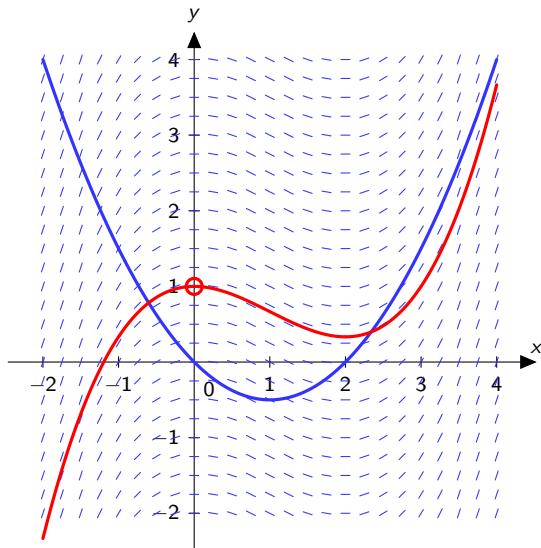
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Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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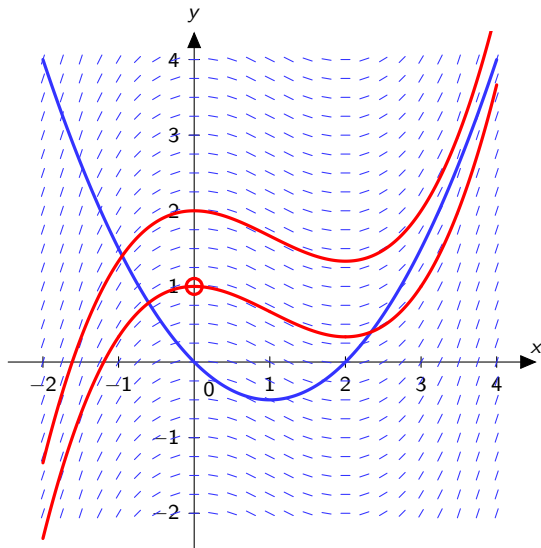
$$F(x) = \frac{1}{6}x^3 - \frac{1}{2}x^2 + 1$$



Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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

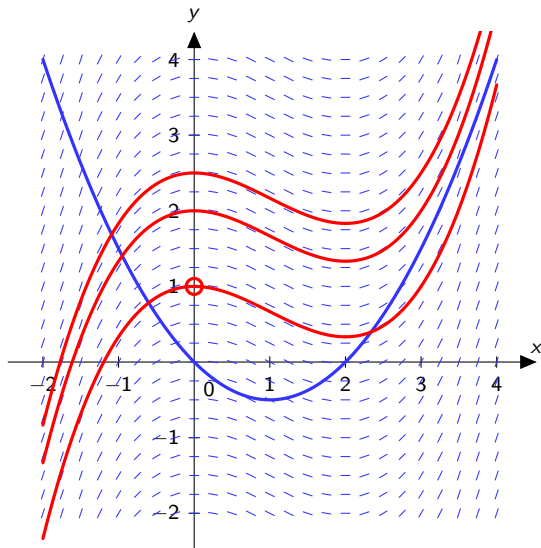
$$F(x) = \frac{1}{6}x^3 - \frac{1}{2}x^2 + 1$$



Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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

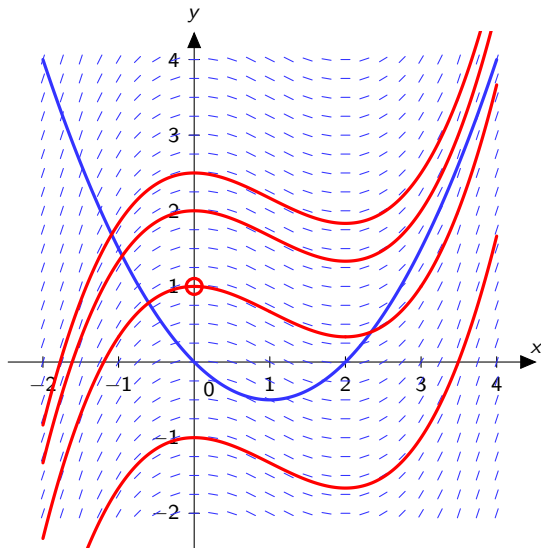
$$F(x) = \frac{1}{6}x^3 - \frac{1}{2}x^2 + 1$$



Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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

$$F(x) = \frac{1}{6}x^3 - \frac{1}{2}x^2 + 1$$



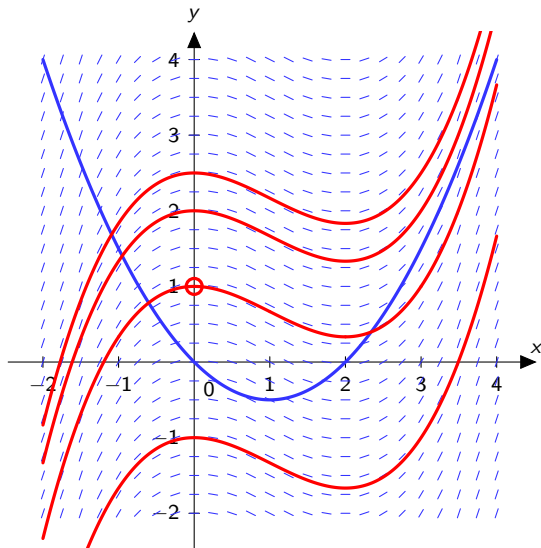
Stammfunktionen: Finde $F(x)$ mit $F'(x) = f(x)$

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

$$F(x) = \frac{1}{6}x^3 - \frac{1}{2}x^2 + 1$$

Allgemein:

$$F(x) = \frac{1}{6}x^3 - \frac{1}{2}x^2 + c$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

Mathematikernotation und Physikernotation

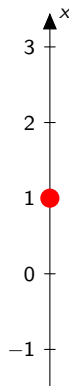
$$F'(x) = f(x)$$

$$F'(t) = f(t)$$

Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

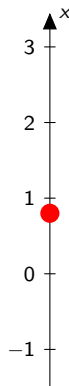
$$x'(t) = v(t)$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

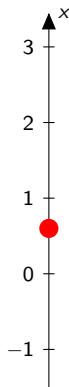
$$x'(t) = v(t)$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

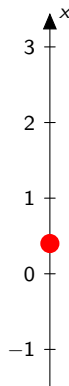
$$x'(t) = v(t)$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

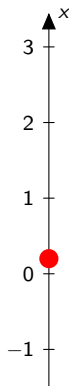
$$x'(t) = v(t)$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

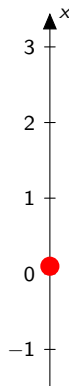
$$x'(t) = v(t)$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

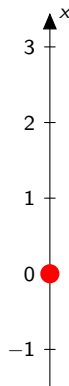
$$x'(t) = v(t)$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

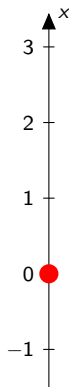
$$x'(t) = v(t)$$



Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

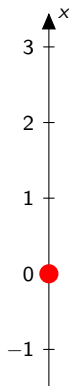
$$\dot{x}(t) = v(t)$$



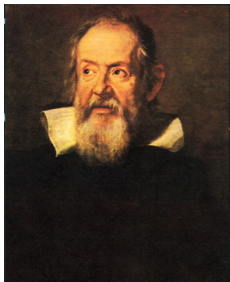
Mathematikernotation und Physikernotation

$$F'(x) = f(x)$$

$$\dot{x} = v(t)$$

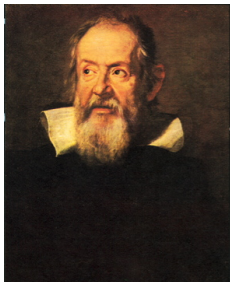


Beispiel: Freier Fall



Galileo Galilei
(1564 – 1642)

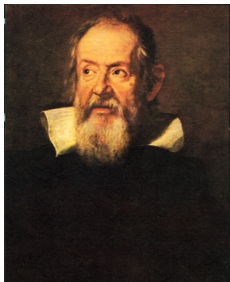
Beispiel: Freier Fall



Galileo Galilei
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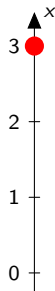
$$v(t) = -gt$$

Beispiel: Freier Fall

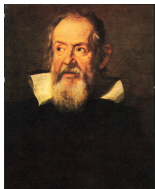


Galileo Galilei
(1564 – 1642)

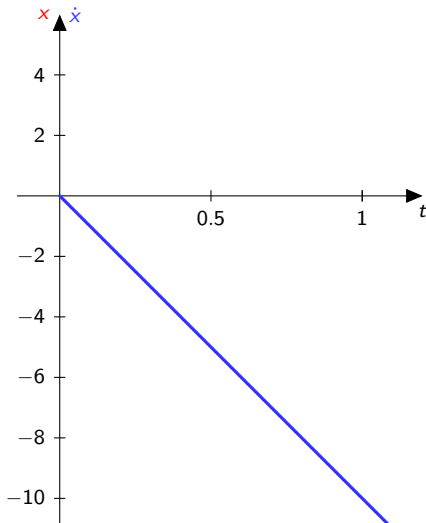
$$v(t) = -gt$$



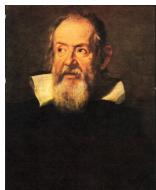
Beispiel: Freier Fall



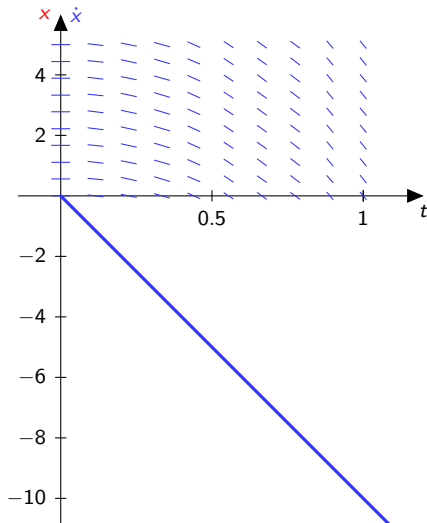
$$\dot{x} = -gt$$



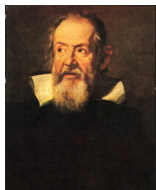
Beispiel: Freier Fall



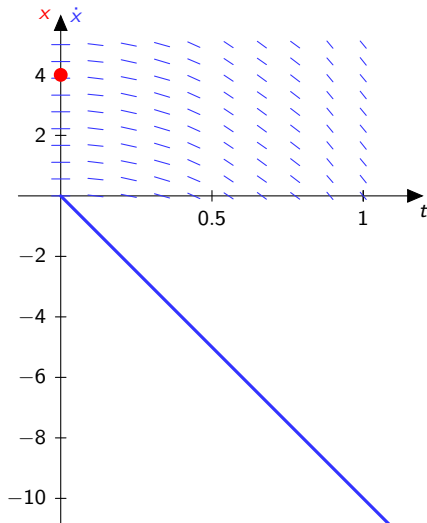
$$\dot{x} = -gt$$



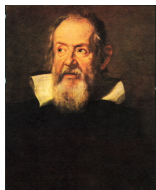
Beispiel: Freier Fall



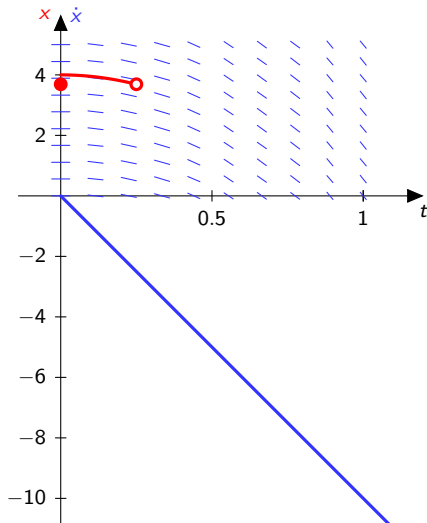
$$\dot{x} = -gt$$



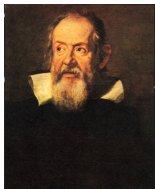
Beispiel: Freier Fall



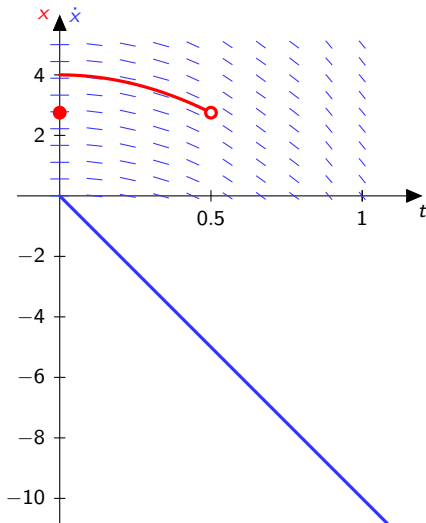
$$\dot{x} = -gt$$



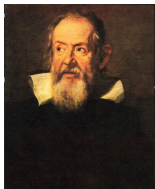
Beispiel: Freier Fall



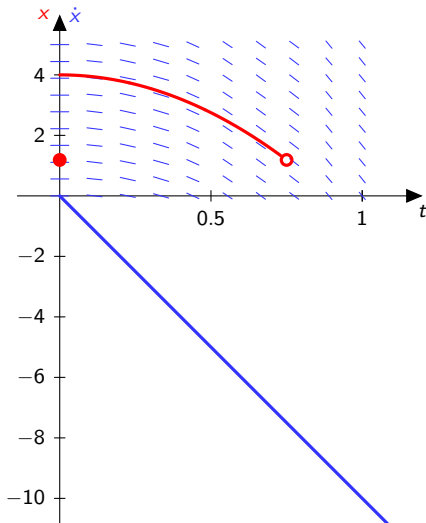
$$\dot{x} = -gt$$



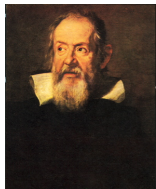
Beispiel: Freier Fall



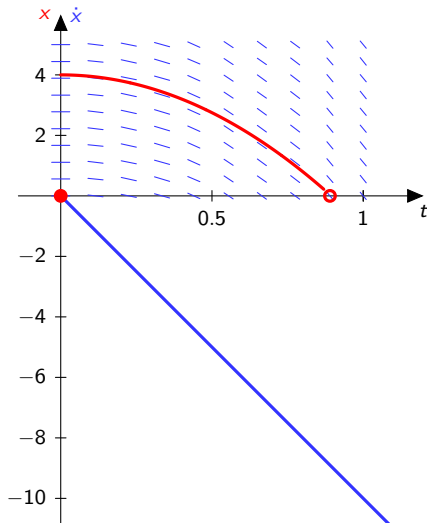
$$\dot{x} = -gt$$



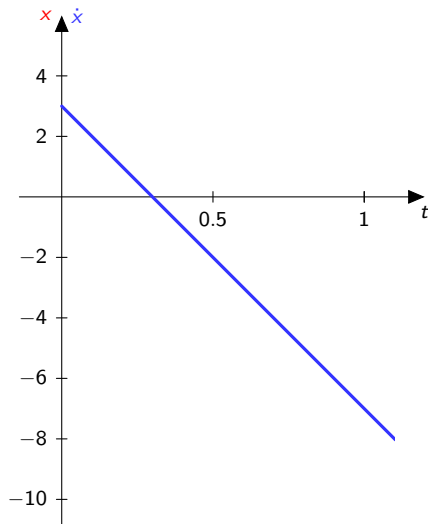
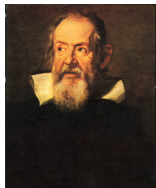
Beispiel: Freier Fall



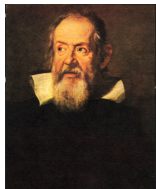
$$\dot{x} = -gt$$



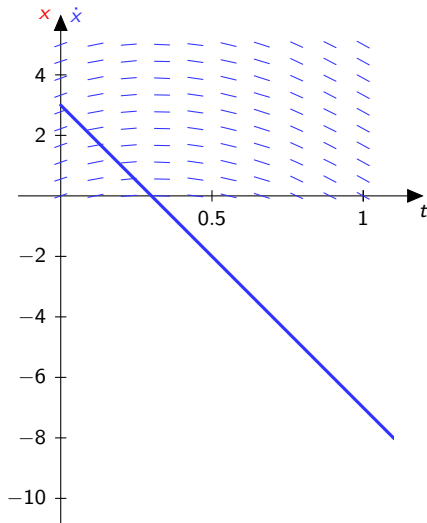
Beispiel: Freier Fall



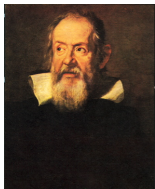
Beispiel: Freier Fall



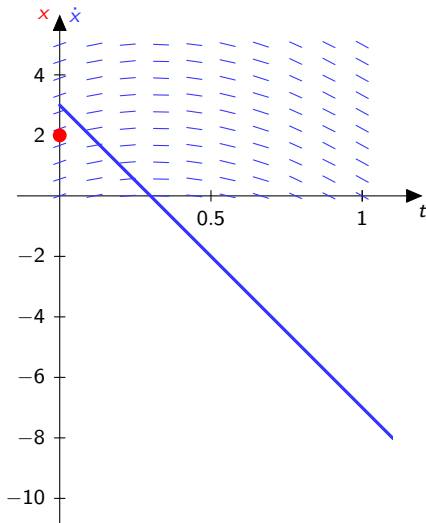
$$\dot{x} = -gt + v_0$$



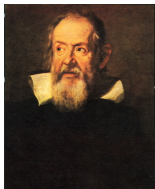
Beispiel: Freier Fall



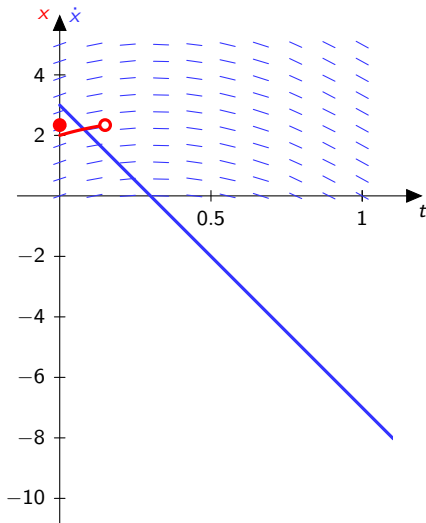
$$\dot{x} = -gt + v_0$$



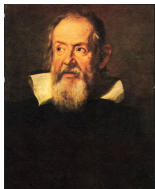
Beispiel: Freier Fall



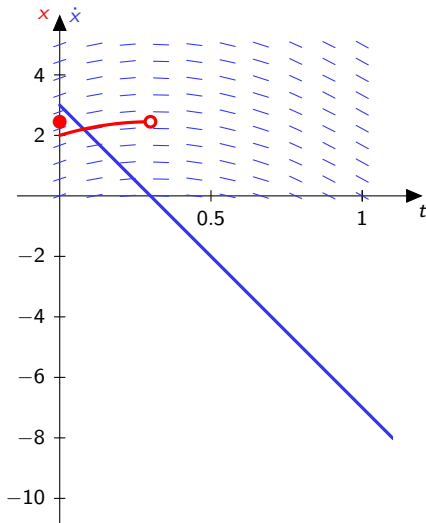
$$\dot{x} = -gt + v_0$$



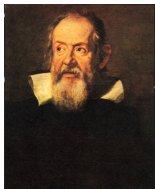
Beispiel: Freier Fall



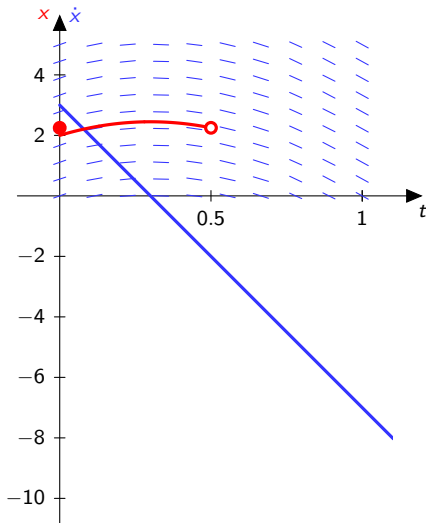
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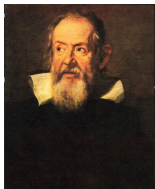
Beispiel: Freier Fall



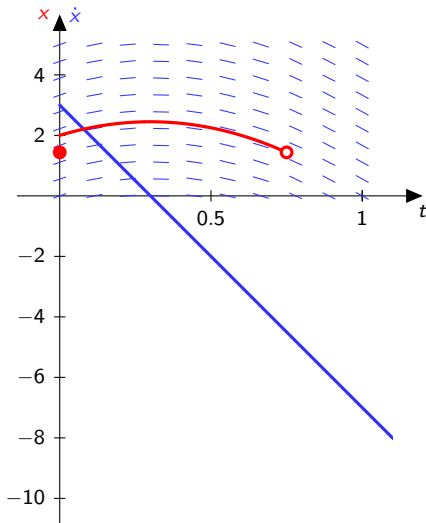
$$\dot{x} = -gt + v_0$$



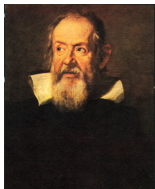
Beispiel: Freier Fall



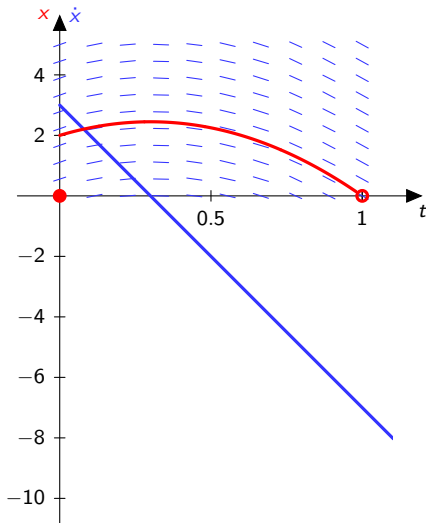
$$\dot{x} = -gt + v_0$$



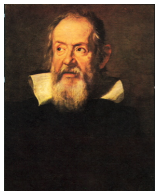
Beispiel: Freier Fall



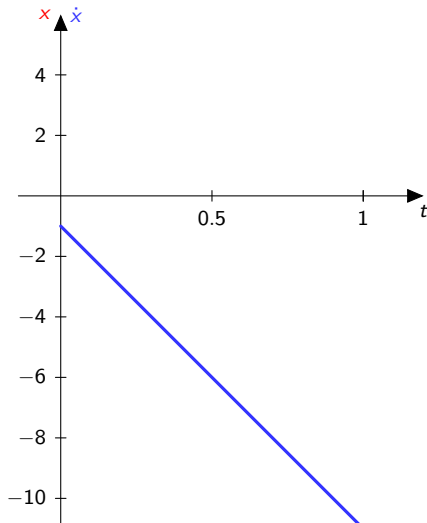
$$\dot{x} = -gt + v_0$$



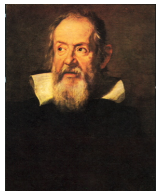
Beispiel: Freier Fall



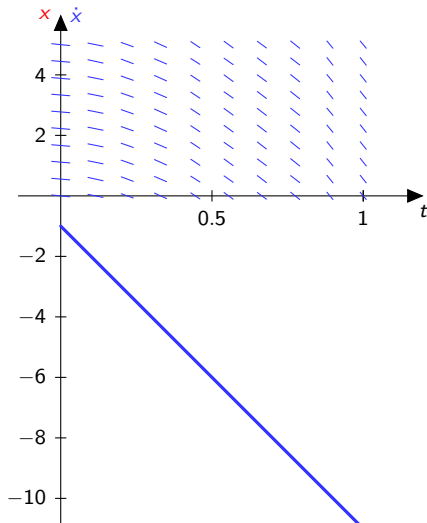
$$\dot{x} = -gt + v_0$$



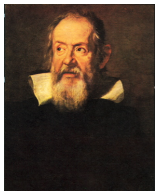
Beispiel: Freier Fall



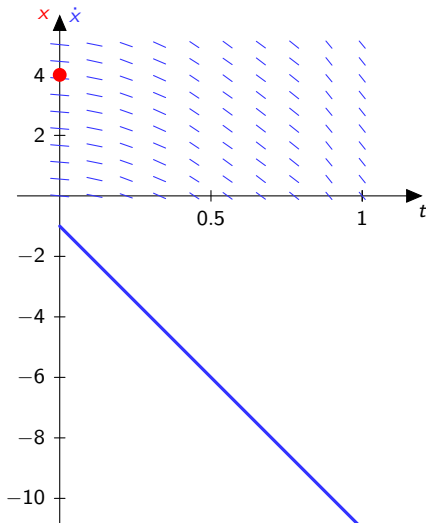
$$\dot{x} = -gt + v_0$$



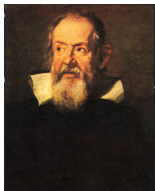
Beispiel: Freier Fall



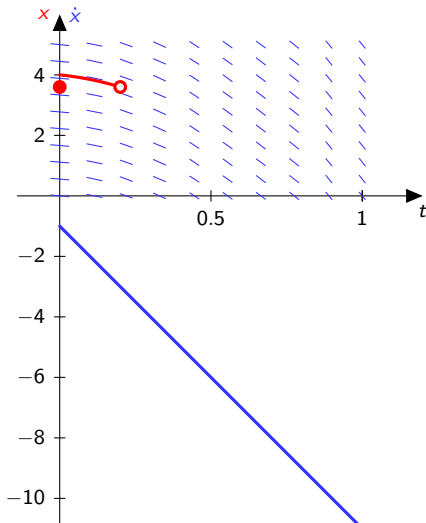
$$\dot{x} = -gt + v_0$$



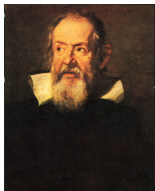
Beispiel: Freier Fall



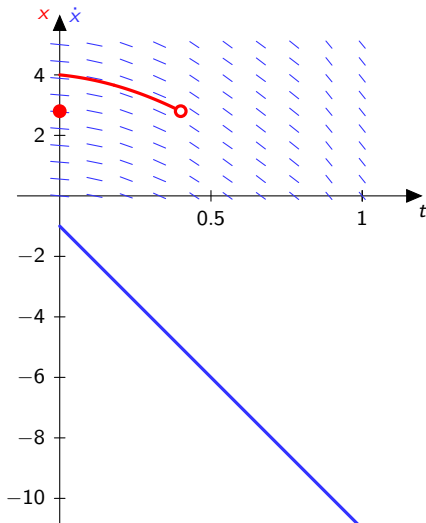
$$\dot{x} = -gt + v_0$$



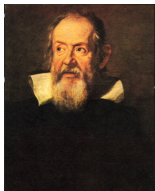
Beispiel: Freier Fall



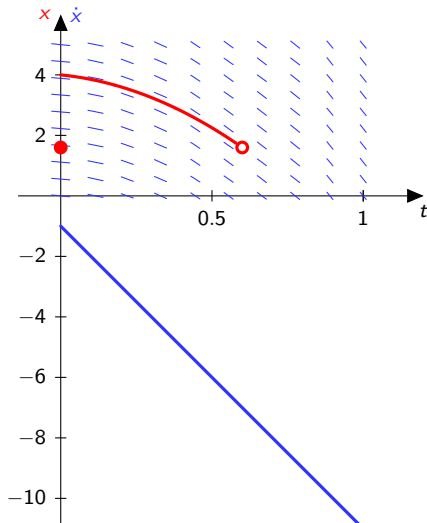
$$\dot{x} = -gt + v_0$$



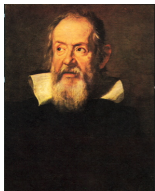
Beispiel: Freier Fall



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Beispiel: Freier Fall



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