

11.1.1

$$\vec{r}(t) = \vec{i} + t \cdot \vec{j}$$

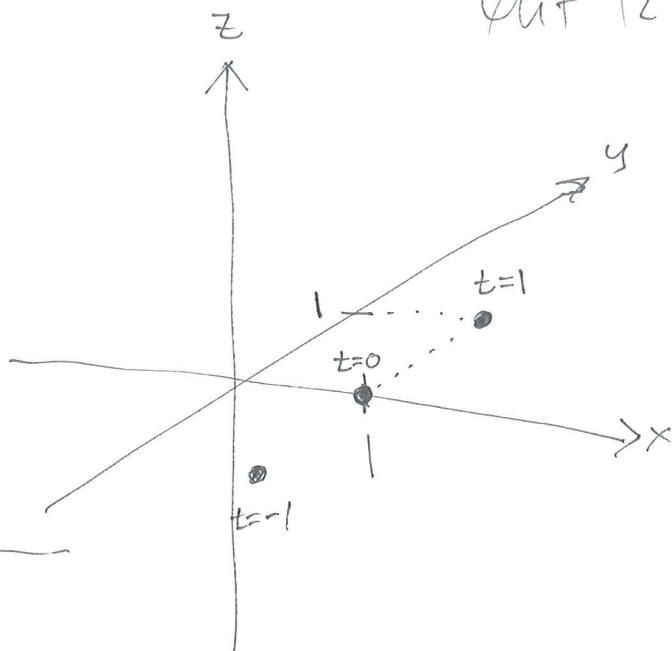
$$\vec{r}'(t) = \vec{v}(t) = \vec{j}$$

$$|\vec{v}(t)| = \sqrt{1^2} = 1 \text{ m/s}$$

$$\vec{v}'(t) = \vec{a}(t)$$

$$= \vec{0}$$

$v(t)$



Bahnen:  $x=1$   
 $z=0$

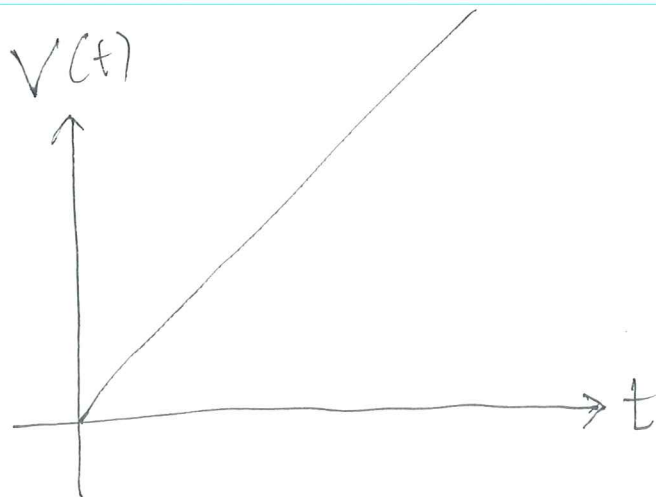
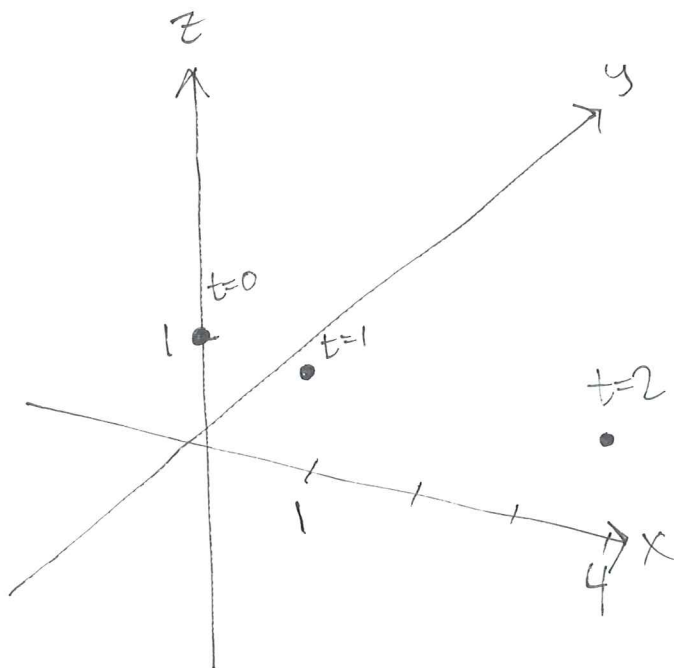
11.1.2

$$\vec{r}(t) = t^2 \vec{i} + \vec{k}$$

$$\vec{v}(t) = 2t \cdot \vec{i}$$

$$|\vec{v}(t)| = \sqrt{(2t)^2} = 2t$$

$$\vec{a}(t) = 2\vec{i}$$



11.1.3

Aut 12 (2)

$$\vec{r}(t) = t^2 \vec{j} + t \vec{k}$$

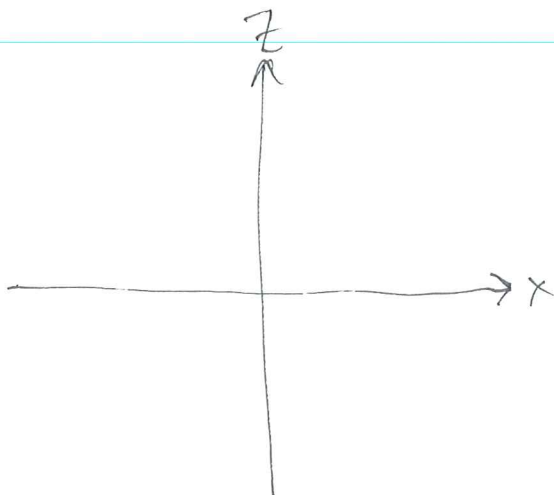
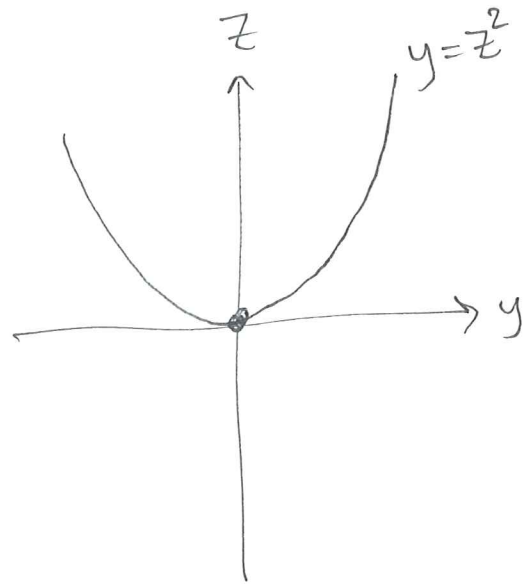
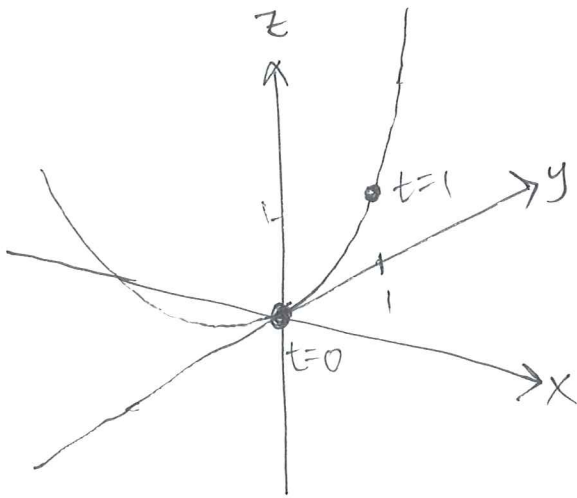
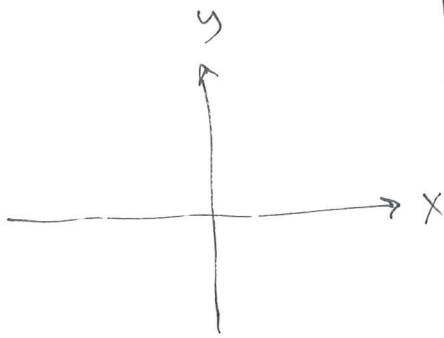
$$\vec{v}(t) = 2t \vec{j} + \vec{k}$$

$$v(t) = \sqrt{(2t)^2 + 1^2} = \sqrt{4t^2 + 1}$$

$$\vec{a}(t) = 2 \vec{j}$$

$$y = t^2$$
$$z = t$$

$$\Rightarrow \boxed{y = z^2}$$



11.1.11

Üb 12 (3)

$$\vec{r}(t) = a \cdot e^t \cdot \vec{i} + b \cdot e^t \cdot \vec{j} + c \cdot e^t \cdot \vec{k}$$

$$\vec{v}(t) = a \cdot e^t \cdot \vec{i} + b \cdot e^t \cdot \vec{j} + c \cdot e^t \cdot \vec{k}$$

$$v(t) = \sqrt{(a \cdot e^t)^2 + (b \cdot e^t)^2 + (c \cdot e^t)^2}$$

$$= \sqrt{(e^t)^2 \cdot (a^2 + b^2 + c^2)} = e^t \cdot \sqrt{a^2 + b^2 + c^2}$$

$$\vec{a}(t) = a \cdot e^t \cdot \vec{i} + b \cdot e^t \cdot \vec{j} + c \cdot e^t \cdot \vec{k}$$

$$x = a \cdot e^t$$

$$\frac{x}{a} = e^t$$

$$y = b \cdot e^t$$

$$\Rightarrow \frac{y}{b} = e^t$$

$$z = c \cdot e^t$$

$$\frac{z}{c} = e^t$$

$$\Rightarrow \frac{x}{a} = \frac{y}{b} = \frac{z}{c}$$