

Name:

Punkte: /12P Note:

1) Signale

1.a) Eigenschaften

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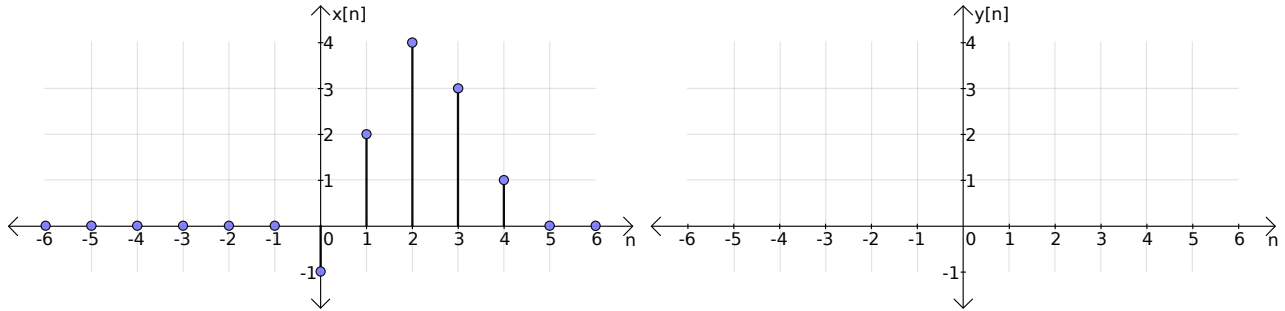
- $x[n]=1\ 0\ 1\ 3\ 1\ 0\ 1\ 3\ 1\ 0\ 1$
- $x[n]=\sin(n*\pi/2)$
- $x(t)=t^2$
- $x[n]=u[n]$
- $x[n]=3$
- $x[n]=\delta[n-2]$

| Gerade | Ungerade | Periodisch | Kausal | Zeitdiskret |
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1.b) Transformation

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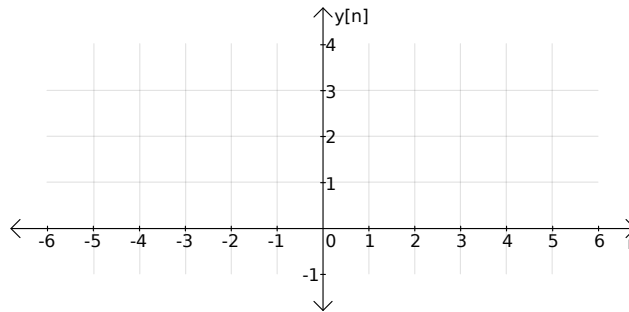
Wie schaut das Signal $y[n]=x[-(n/2)+2]$ aus?



1.c) Signalsynthese

___/3P

Zeichne das folgende Signal: $y[n]= 2\cdot\delta[n+5]+u[n+3]-2\cdot\delta[n+1]+u[n]\cdot\cos(n\cdot\pi/2)$



2) Systeme

2.a) Eigenschaften

___/2P

- $y[n]=x[n]\cdot 3+2$
- $y[n]=x[n]\cdot h[0]+x[n-1]\cdot h[1]+x[n-2]\cdot h[2]$
- $y[n]=0.25\cdot(x[n-1]+x[n]+x[n+1]+x[n+2])$
- $h[n]=e^{-n}$ für $n\geq 0$, 0 für $n<0$

| Linear | FIR | IIR | Dynamisch | Kausal | BIBO Stabil |
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2.b) Faltung

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Gegeben ist die Eingangsfolge $x[n]=1\ 2\ 2\ 3\ 2\ 1\ 0$. Die Impulsantwort des Systems ist $h[n]=0\ 1\ 2\ 2\ 3\ -1$. Wie schaut die Ausgangsfolge aus?