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Determine which of the following systems is a linear system.

A $y(n)=4\,x^3(n-1)-2\,x(n)$

B $y(n)=5\,x(n)+2\,x^2(n)$

C $y(n)=x(n-1)+4\,x(n)$

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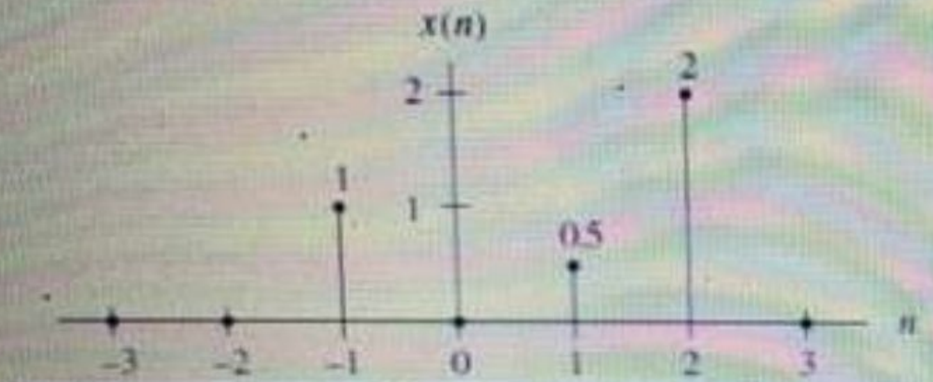

Zoom

What is the digital signal that represents the attached figure?

A $x(n) = \delta(n-1) + 0.5\,\delta(n+1) + 2\,\delta(n+2)$

B $x(n) = -\delta(n-1) - 0.5\,\delta(n+1) - 2\,\delta(n+2)$

C $x(n) = -\delta(n+1) - 0.5\,\delta(n-1) - 2\,\delta(n-2)$

D $x(n) = \delta(n+1) + 0.5\,\delta(n-1) + 2\,\delta(n-2)$

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Which of the following linear systems are casual?

A a) $y(n) = 0.5\,x(n) + 100\,x(n-2) - 20\,x(n-10)$

B (b) $y(n) = x(n+4) + 0.5x(n) - 2x(n-2)$

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Given the following linear systems, find which one is time invariant.

A $y(n) = 4\,x(n^2)$

B $y(n) = -5\,x(n-10)$

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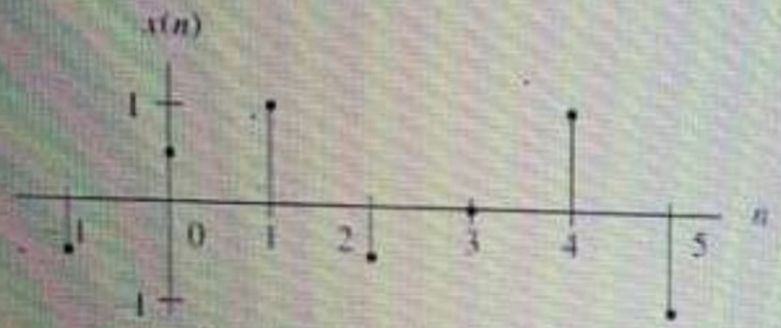

What is the digital signal that represents the attached figure?

Zoom

A $x(n) = -.5\,\delta(n-1) + \delta(n+1) - .5\,\delta(n+2) + \delta(n-4) - \delta(n+5)$

B $x(n) = -.5\,\delta(n+1) + \delta(n-1) - .5\,\delta(n-2) + \delta(n-4) - \delta(n-5)$

C $x(n) = -.5\,\delta(n-1) + \delta(n) - .5\,\delta(n-2) + \delta(n-3) - \delta(n-5)$

D $x(n) = -.5\,\delta(n+1) + \delta(n-1) - .5\,\delta(n-2) + .5\,\delta(n-3) + \delta(n-4) - \delta(n-5)$

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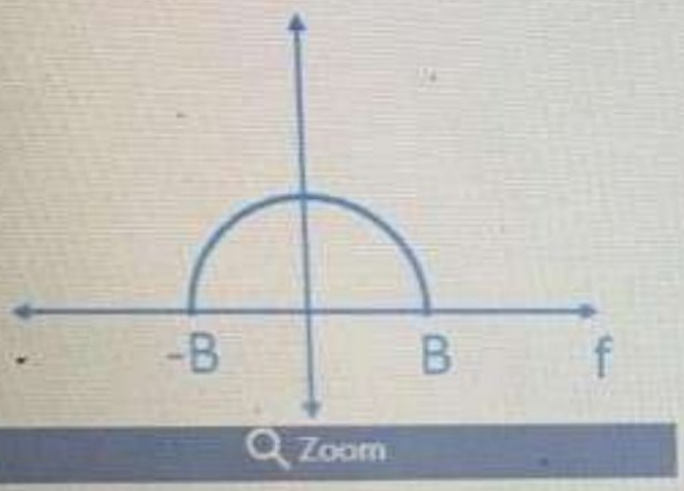

Zoom

For the signal of bandwidth of B=2000 Hz, which of the following sampling rate satisfy the Nyquist rate.

A 3000 sample/S

B 2000 sample/S

C 5000 sample/S

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Which of the following linear systems are casual?

A $y(n) = 0.5\,x(n) + 20x(n-2) - 0.1\,y(n-1)$

B $y(n) = x(n-1) + 0.5\,y(n+2)$

C $y(n) = x(n+2) - 0.4\,y(n-1)$

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Determine which of the following systems is a linear system.

A $y(n)=4\,x(n)+8\,x^3(n)$

B $y(n)=5\,x^2(n-1)-3\,x(n)$

C $y(n)=x(n-3)+3\,x(n)$