

## FONKSİYONLAR (2)

### Özel tanımlı fonksiyonlar

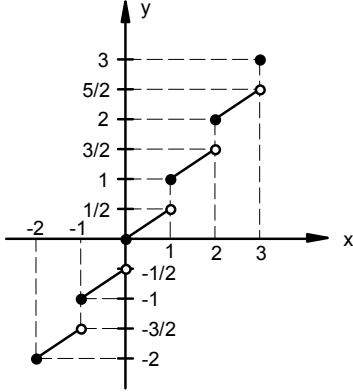
Muharrem Şahin

1.  $f: [0, 1) \rightarrow \mathbb{R}$

$f(x) = x \cdot \lceil x \rceil + x \cdot \text{sgn}(x-1) + |x-1|$  fonksiyonu aşağıdakilerden hangisine eşittir?

- A)  $2x-1$       B)  $x+1$       C)  $-x+1$   
D)  $-2x-1$       E)  $-2x+1$

2.



Şekilde grafiği verilen fonksiyonun kuralı aşağıdakilerden hangisi olabilir?

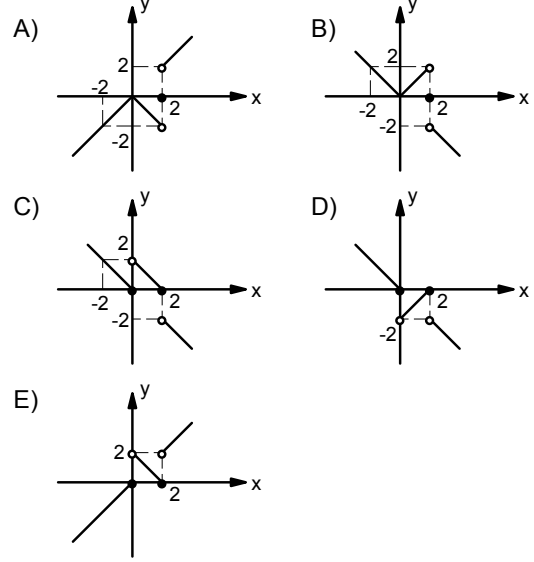
- A)  $f_1(x) = x - \frac{1}{2} \cdot |\text{sgn } x|$   
B)  $f_2(x) = \frac{3}{2}x - \frac{1}{2} \lceil x \rceil$   
C)  $f_3(x) = \lceil 2x \rceil - \lceil x \rceil$   
D)  $f_4(x) = \frac{1}{2}(x + \lceil x \rceil)$   
E)  $f_5(x) = \frac{1}{2} \lceil 2x \rceil$

3.  $f: [\pi, 2\pi] \rightarrow \mathbb{R}$ ;

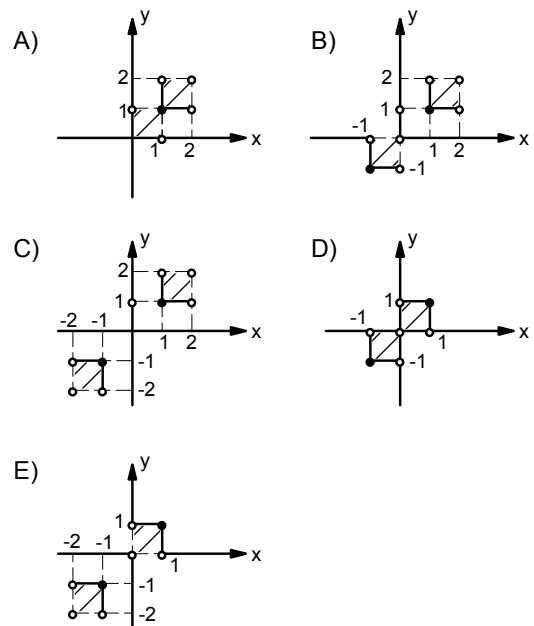
$f(x) = \sin x + |\sin x| + \lceil \sin x \rceil + \text{Sgn}(\sin x)$  fonksiyonu aşağıdakilerden hangisine eşittir?

- A)  $f(x) = \begin{cases} 0 & , x \in \{\pi, 2\pi\} \text{ ise} \\ -2 \sin x - 2, \pi < x < 2\pi & \text{ ise} \end{cases}$   
B)  $f(x) = \begin{cases} 0 & , x \in \{\pi, 2\pi\} \text{ ise} \\ \sin x - 1 & , \pi < x < 2\pi \text{ ise} \end{cases}$   
C)  $f(x) = \begin{cases} 0 & , x \in \{\pi, 2\pi\} \text{ ise} \\ -\sin x - 1 & , \pi < x < 2\pi \text{ ise} \end{cases}$   
D)  $f(x) = \begin{cases} 0 & , x \in \{\pi, 2\pi\} \text{ ise} \\ -2 & , \pi < x < 2\pi \text{ ise} \end{cases}$   
E)  $f(x) = \begin{cases} 0 & , x \in \{\pi, 2\pi\} \text{ ise} \\ 2 \sin x - 2 & , \pi < x < 2\pi \text{ ise} \end{cases}$

4.  $f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = x \cdot \text{sgn}(2x - x^2)$  fonksiyonunun grafiği aşağıdakilerden hangisidir?



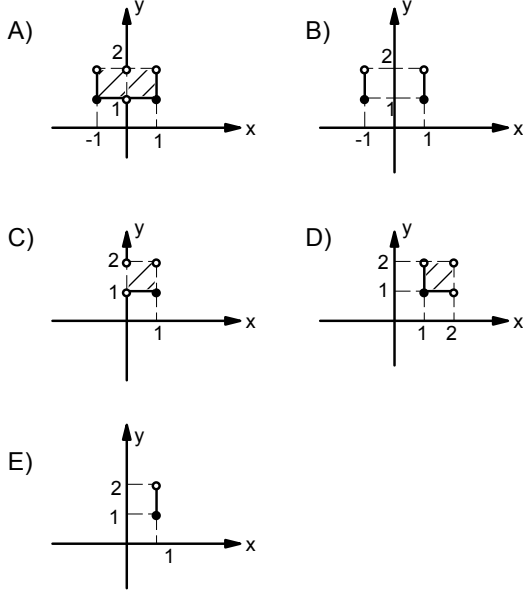
5.  $b = \{(x,y) \mid \lceil x \rceil \cdot \lceil y \rceil = 1, x,y \in \mathbb{R}\}$  bağıntısının grafiği aşağıdakilerden hangisidir?



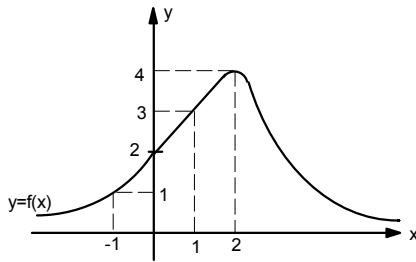
## Özel tanımlı fonksiyonlar

Muharrem Şahin

6.  $\left[ \frac{2}{x^2+1} \right] \cdot \lfloor y \rfloor = 1$  bağıntısının grafiği aşağıdakilerden hangisidir?



7.



Şekilde  $y = f(x)$  fonksiyonunun grafiği verilmiştir.

$g(x) = f(\text{sgn } x)$  biçiminde tanımlanan  $g: \mathbb{R} \rightarrow \mathbb{R}$  fonksiyonu için  $g(\mathbb{R})$  görüntü kümesi aşağıdakilerden hangisidir?

- A)  $\{-1, 0, 1\}$       B)  $\{0, 1\}$       C)  $\{1, 2, 3\}$   
D)  $\{2, 3\}$       E)  $\{1, 2, 4\}$

8.  $f: \mathbb{R} \rightarrow \mathbb{R}$

$f(x) = \begin{cases} x^2 + |x-2| & \end{cases}$  fonksiyonu aşağıdakilerden hangisine eşittir?

A)  $f(x) = \begin{cases} x^2 - x + 2 & x < 1 \text{ ise} \\ -x^2 - x + 2 & 1 \leq x < 2 \text{ ise} \\ x^2 + x - 2 & x \geq 2 \text{ ise} \end{cases}$

B)  $f(x) = \begin{cases} x^2 - x + 2 & x < 2 \text{ ise} \\ x^2 + x - 2 & x \geq 2 \text{ ise} \end{cases}$

C)  $f(x) = \begin{cases} x^2 - x + 2 & x < -2 \text{ ise} \\ -x^2 - x + 2 & -2 \leq x < 2 \text{ ise} \\ x^2 + x - 2 & x \geq 2 \text{ ise} \end{cases}$

D)  $f(x) = \begin{cases} -x^2 - x + 2 & x < 1 \text{ ise} \\ x^2 - x + 2 & 1 \leq x < 2 \text{ ise} \\ x^2 + x - 2 & x \geq 2 \text{ ise} \end{cases}$

E)  $f(x) = \begin{cases} -x^2 - x + 2 & x < 2 \text{ ise} \\ x^2 - x + 2 & x \geq 2 \text{ ise} \end{cases}$

9.  $f: \mathbb{R} \rightarrow \mathbb{R}$

$f(x) = \left[ \frac{2}{x^2+1} \right]$  fonksiyonunun  $f(\mathbb{R})$  görüntü kümesi aşağıdakilerden hangisidir?

- A)  $(0, 2)$       B)  $\{1, 2\}$       C)  $(0, 2]$   
D)  $\{0, 1, 2\}$       E)  $[0, 2]$

10.  $\mathbb{R}$  den  $\mathbb{R}$  ye  $h(x) = f(1-|x|)$ ,  $g(x) = |x|$ ,  $t(x) = x+1$  ve  $S(x) = -x$  fonksiyonları veriliyor.

$h$  fonksiyonu aşağıdakilerden hangisine eşittir?

- A) fosogot      B) fotogos      C) fotosog  
D) fogosot      E) fogotos

11.  $\mathbb{R}$  den  $\mathbb{R}$  ye  $h(x) = f(2[|x|]-1)$ ,  $g(x) = 2x$ ,  $t(x) = [|x|]$  ve  $S(x) = x-1$  fonksiyonları veriliyor.

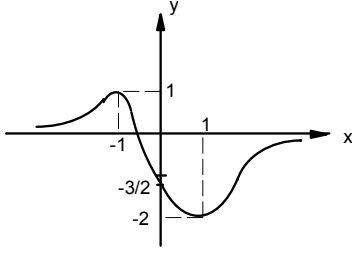
$h$  fonksiyonu aşağıdakilerden hangisine eşittir?

- A) fosogot      B) fotogos      C) fotosog  
D) fogosot      E) fogotos

## Özel tanımlı fonksiyonlar

Muharrem Şahin

12.



$f: \mathbb{R} \rightarrow \mathbb{R}$

$y = f(x)$  fonksiyonunun grafiği şekilde verilmiştir.

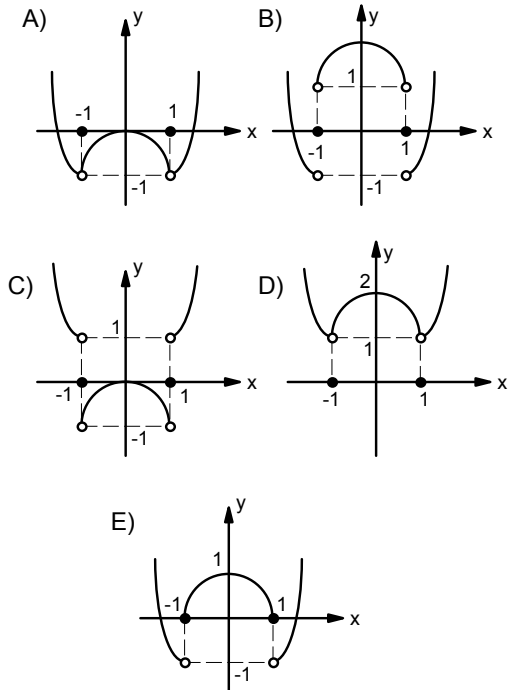
$g(x) = \lceil f(x) \rceil$  ise  $(\text{gog})(\mathbb{R})$  kümesi aşağıdakilerden hangisidir?

- A)  $[-2, 1]$       B)  $\{-2, -1, 0, 1\}$       C)  $\{-2, 0, 1\}$   
D)  $\{-1, 0, 1\}$       E)  $\{-2, -1, 0\}$

13.

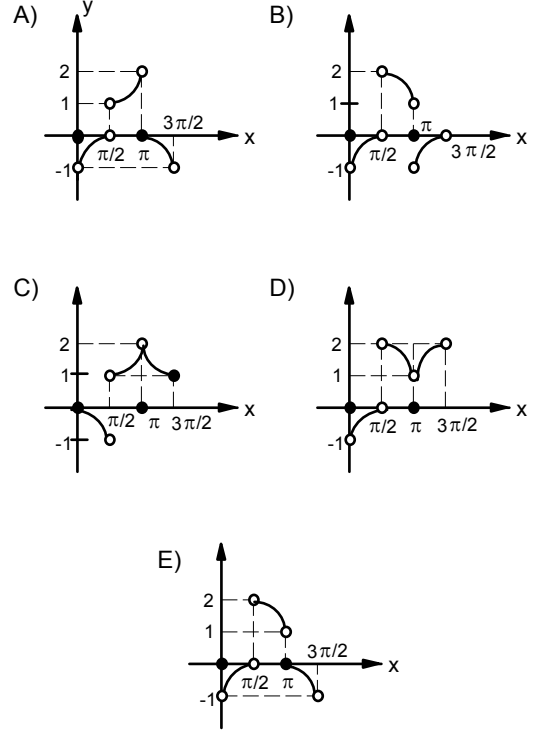
$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $f(x) = |x^2 - 1| - \text{sgn}(x^2 - 1)$

fonksiyonunun grafiği aşağıdakilerden hangisidir?



14.  $f: \left[0, \frac{3\pi}{2}\right] - \left\{\frac{\pi}{2}\right\} \rightarrow \mathbb{R}$

$f(x) = |\sin x| - \text{Sgn}(\tan x)$  fonksiyonunun grafiği aşağıdakilerden hangisidir?



15.  $y = x^3$  eğrisinin grafiği x ekseninin pozitif yönüne 2 birim, y ekseninin pozitif yönüne 2 birim kaydırılırsa elde edilecek yeni eğrinin denklemi hangisi olur?

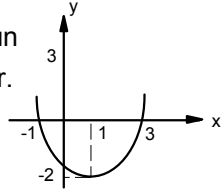
- A)  $y = 2(x-2)^2$       B)  $y = 2(x+2)^3$   
C)  $y = (x-2)^3 + 2$       D)  $y = (x+2)^3 + 2$   
E)  $y = (x+2)^3 - 2$

## Özel tanımlı fonksiyonlar

## Muharrem Şahin

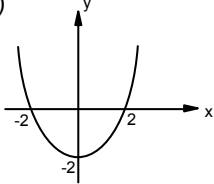
16.

$y=f(x)$  fonksiyonunun grafiği verilmiştir.

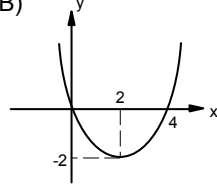


$y=f(x)$  fonksiyonunun grafiği yukarıda verilmiştir.  $y = f(x+1)$  in grafiği hangisidir?

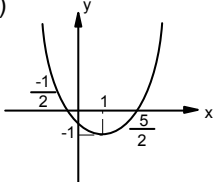
A)



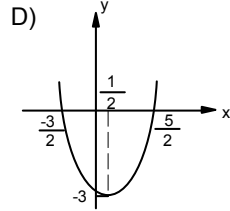
B)



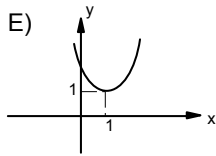
C)



D)

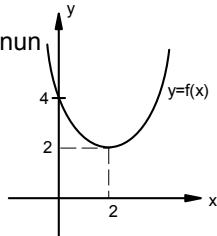


E)



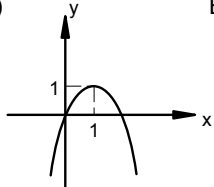
17.

$y=f(x)$  fonksiyonunun grafiği verilmiştir.

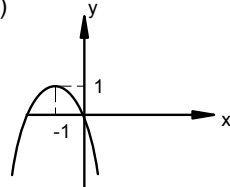


$f(x) + 2g(x) = 0$  koşuluna uyan  $y = g(x)$  fonksiyonunun grafiği hangisi olabilir?

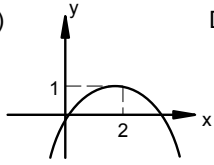
A)



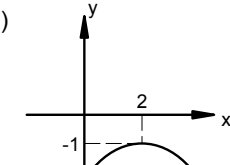
B)



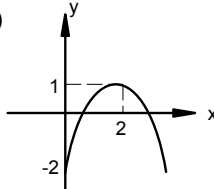
C)



D)

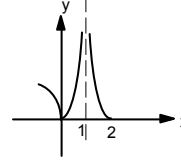


E)

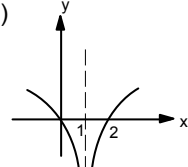


18.  $f: \mathbb{R} - \{1\} \rightarrow \mathbb{R}$ ,  $f(x) = \ln|x-1|$  fonksiyonunun grafiği aşağıdakilerden hangisidir?

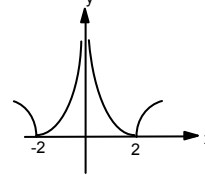
A)



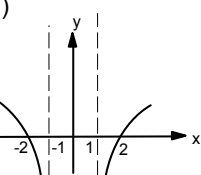
B)



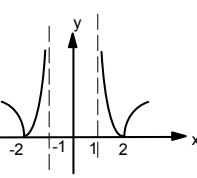
C)



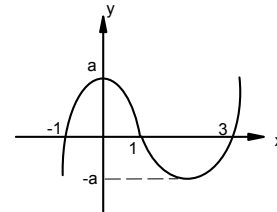
D)



E)



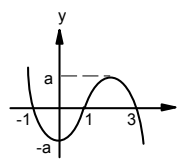
19.



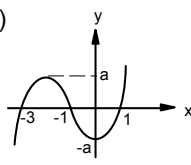
$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.

$g(x) = f(-x)$  in grafiği aşağıdakilerden hangisidir?

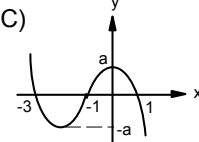
A)



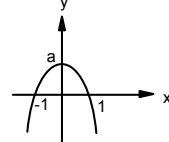
B)



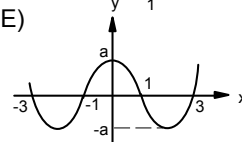
C)



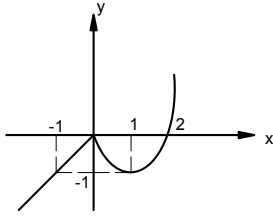
D)



E)



20.

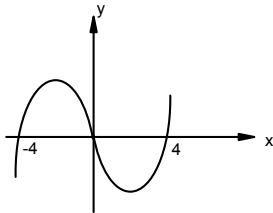


$f: \mathbb{R} \rightarrow \mathbb{R}$  ,  $y = f(x)$  in grafiği şekilde verilmiştir.

$g(x) = 1 - f(-x)$  in grafiği aşağıdakilerden hangisidir?

- A)
- B)
- C)
- D)
- E)

21.

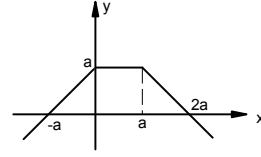


Şekilde  $y = f(x)$  fonksiyonunun grafiği verilmiştir.

$f(2x) = f(x)$  denkleminin kaç gerçek kökü vardır?

- A) 0      B) 1      C) 2      D) 3      E) 4

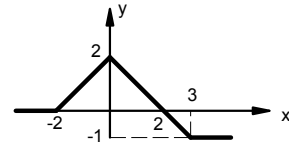
22.



$f: \mathbb{R} \rightarrow \mathbb{R}$  ,  $y = f(x)$  in grafiği şekilde verilmiştir.  
 $g(x) = f(|x|)$  in grafiği aşağıdakilerden hangisidir?

- A)
- B)
- C)
- D)
- E)

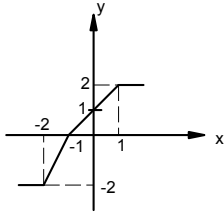
23.



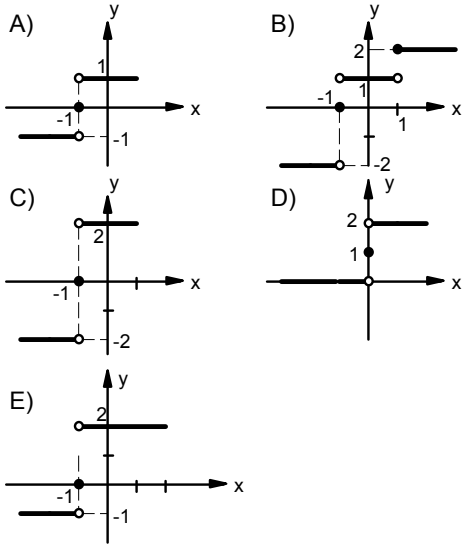
$f: \mathbb{R} \rightarrow \mathbb{R}$  ,  $y = f(x)$  in grafiği şekilde verilmiştir.  
 $g(x) = f(|x|)$  in grafiği aşağıdakilerden hangisidir?

- A)
- B)
- C)
- D)
- E)

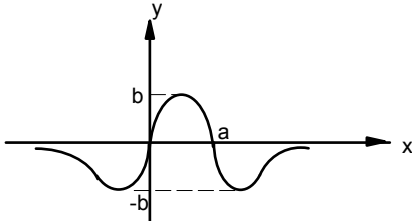
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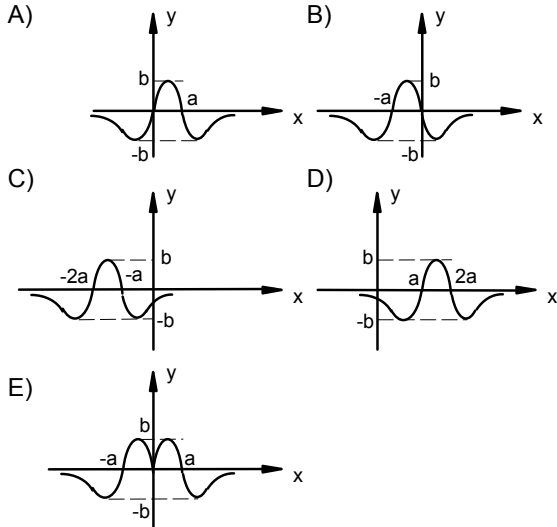
$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.  $g(x) = f(\text{Sgn}x)$  in grafiği aşağıdakilerden hangisidir?



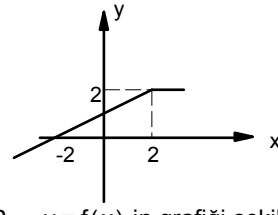
25.



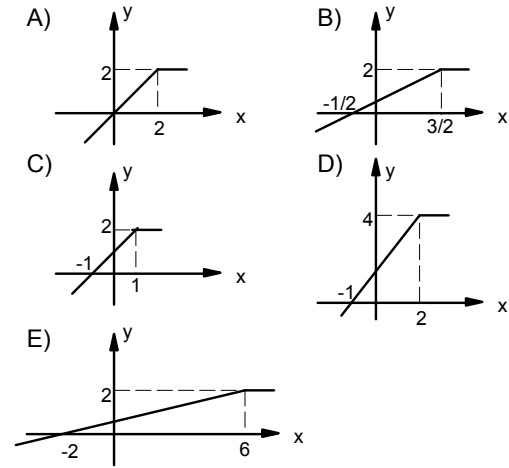
$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.  $g(x) = f(a - x)$  in grafiği aşağıdakilerden hangisidir?



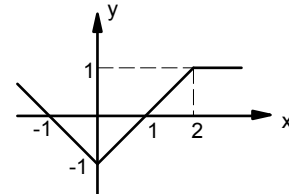
26.



$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.  $g(x) = f(2x - 1)$  in grafiği aşağıdakilerden hangisidir?

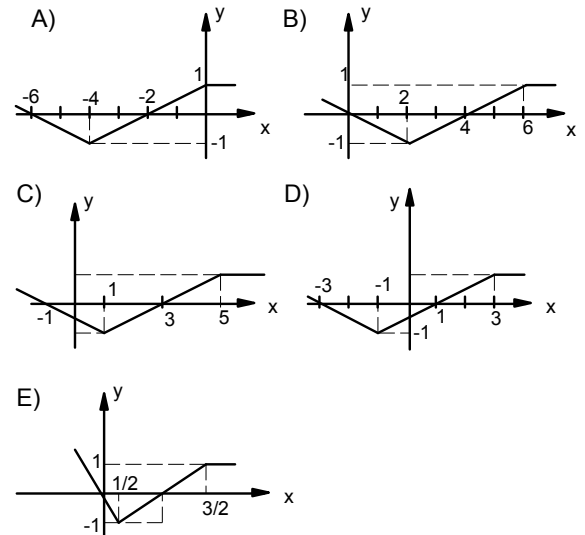


27.



$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.

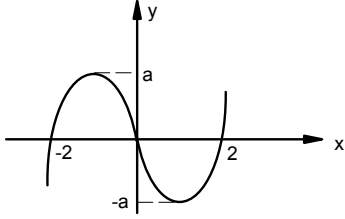
$g(x) = f\left(\frac{x-2}{2}\right)$  in grafiği aşağıdakilerden hangisidir?



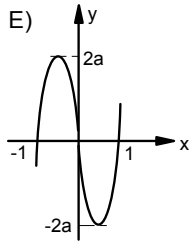
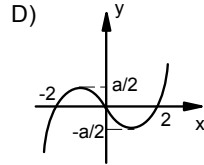
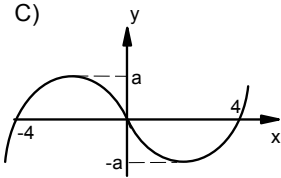
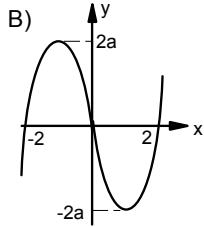
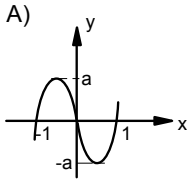
## Özel tanımlı fonksiyonlar

Muharrem Şahin

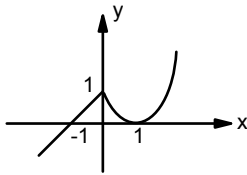
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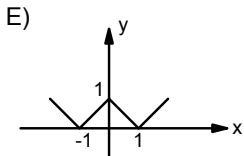
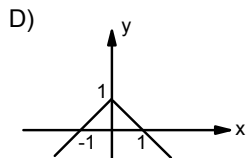
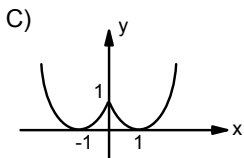
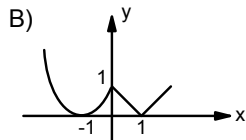
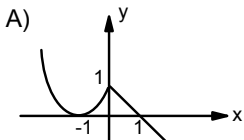
$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.  
 $g(x) = f(2x)$  fonksiyonunun grafiği aşağıdakilerden hangisidir?



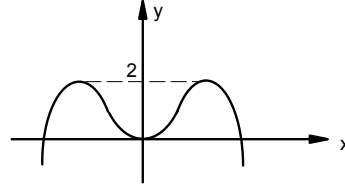
29.



$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.  
 $g(x) = f(-|x|)$  in grafiği aşağıdakilerden hangisidir?



30.

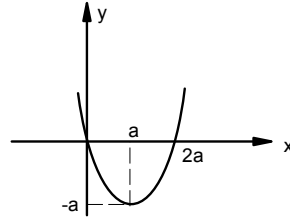


Şekilde  $y = f(x)$  fonksiyonunun grafiği verilmiştir.

Buna göre;  $g(x) = 2f(x) - 2$  fonksiyonunun grafiği x eksenini kaç farklı noktada keser?

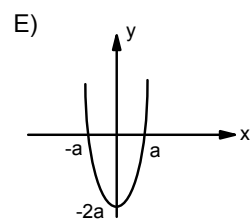
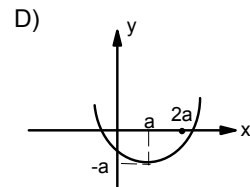
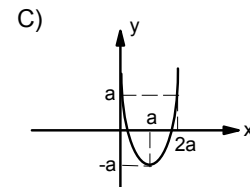
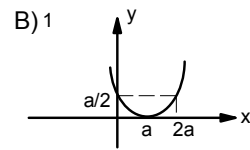
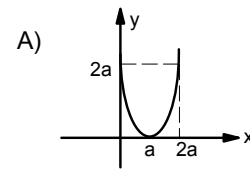
- A) 0    B) 1    C) 2    D) 3    E) 4

31.

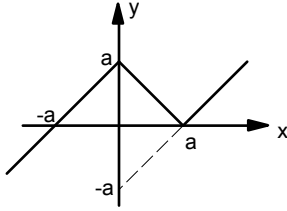


$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.

$g(x) = 2f(x) + a$  nın grafiği aşağıdakilerden hangisidir?

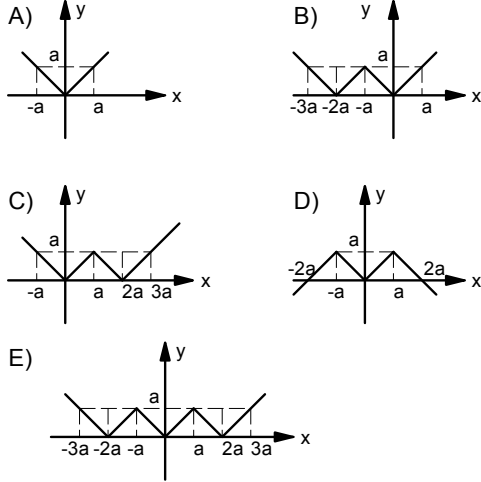


32.

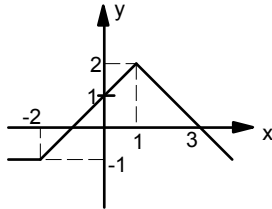


$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.

$g(x) = f(|x| + a)$  in grafiği aşağıdakilerden hangisidir?

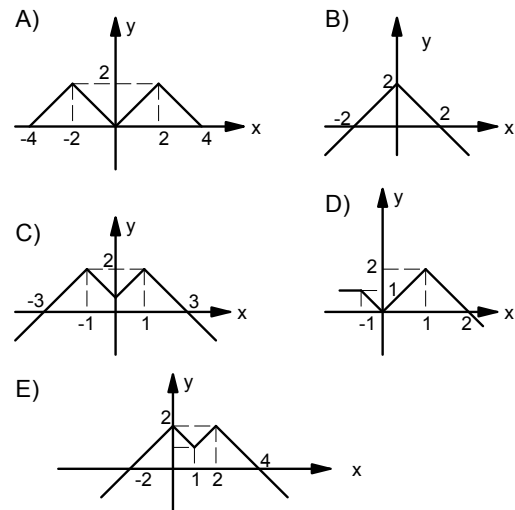


33.

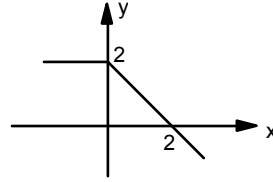


$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.

$g(x) = f(|x-1|)$  in grafiği aşağıdakilerden hangisidir?

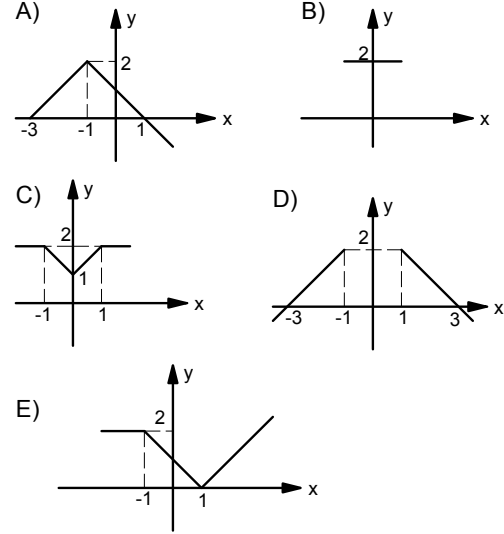


34.

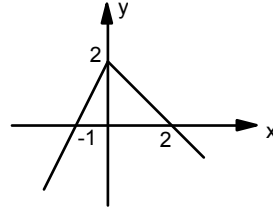


$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.

$g(x) = f(1-|x|)$  in grafiği aşağıdakilerden hangisidir?



35.



$f: \mathbb{R} \rightarrow \mathbb{R}$ ,  $y = f(x)$  in grafiği şekilde verilmiştir.

$g(x) = |-1 + f(|x|)$  in grafiği aşağıdakilerden hangisidir?

