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(977)

(c)

(1) $x \in \mathbb{R}$

(2) $f''(x) = 2 \cos 2x \sin x + \sin 2x \cos x = 2 \cos 2x \sin x + 2 \sin^2 x \cos x =$
 $2 \sin x (\cos 2x + \cos^2 x) = 2 \sin x (2 \cos^2 x - 1 + \cos^2 x) = 2 \sin x (3 \cos^2 x - 1)$
 $f''(x) = 0 = 2 \sin x (3 \cos^2 x - 1)$

$\sin x = 0 \rightarrow x = \pi k \rightarrow x = 0, \pi, 2\pi$

$3 \cos^2 x = 1 \rightarrow \cos x = \pm \sqrt{\frac{1}{3}} \rightarrow x = \pm 0.955 + 2\pi k \quad \left. \begin{array}{l} x = 0.955, 4.097 \\ x = \pm 2.186 + 2\pi k \end{array} \right\} x = 2.186, 5.328$

$(2\pi, 0), (4.097, -0.3698), (2.186, -0.7698), (0, 0)$: נקודות הקיצון; נקודות חיתוך: $(5.328, 0.7698), (\pi, 0), (0.955, 0.3698)$ "

(3)

נקודות הקיצון: $0 < x < 0.9553$; $2.186 < x < \pi$; $4.097 < x < 5.328$; $5.328 < x < 2\pi$; $\pi < x < 4.097$; $0.9553 < x < 2.186$

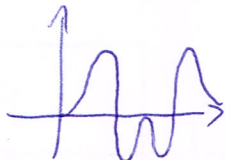
(4) $f(x=0) = 0$ $(0, 0)$: נקודת חיתוך

$0 = \sin 2x \sin x$

חיתוך: $x = 0$

$\sin 2x = 0 \rightarrow 2x = \pi k \rightarrow x = \frac{\pi}{2} k \rightarrow (0, 0), (\frac{\pi}{2}, 0), (\pi, 0), (\frac{3\pi}{2}, 0), (2\pi, 0)$
 $\sin x = 0 \rightarrow \pi k = x \rightarrow (0, 0), (\pi, 0), (2\pi, 0)$

(5)



(6)

(1)

$x = 0$
 $x = \frac{3\pi}{2}$

$f'(x) = 0$: נקודות קיצון
 $x = \frac{\pi}{2}$
 $x = 2\pi$

(2)

$f''(x) = 0$

$x = 2.186$
 $x = 0.9553$

$x = \pi$

$x = 4.097$

(2) נקודות חיתוך

$x = 5.328$

נקודות חיתוך: $x = 0$; $x = \pi$; $x = 2\pi$; $x = 4.097$; $x = 5.328$; $x = 0.9553$; $x = 2.186$

(7)

