498.

6. $2\cos 2x - 3\sin x = 1 \qquad 0 \le x \le 2\pi$

$2(\cos^2 x - \sin^2 x) - 3\sin x = 1$

$2(1 - \sin^2 x - \sin^2 x) - 3\sin x = 1$

$2(1 - 2\sin^2 x) - 3\sin x = 1$

$(2 - 4\sin^2 x) - 3\sin x - 1 = 0$

$-4\sin^2 x - 3\sin x + 1 = 0 \qquad t = \sin x$

$-4t^2 - 3t + 1 = 0$

$\sin x = \frac{1}{4} \qquad \sin x = -1$

$x_1 = 0.25 + 2\pi k$ $\qquad x_3 = -\frac{1}{2}\pi + 2\pi k$

$x_2 = 2.89 + 2\pi k$

	$k = 0$	$k = 1$ ...
$x_1 = 0.25 + 2\pi k$	$x_1 = 0.25 = 0.08\pi$	$x_1 = 0.25 + 2\pi k = 2.08\pi$
$x_2 = 2.89 + 2\pi k$	$x_2 = 2.89 = 0.92\pi$	$x_2 = 2.89 + 2\pi k = 2.92\pi$
$x_3 = -0.5\pi + 2\pi k$	$x_3 = -0.5\pi$	$x_3 = 1.5\pi$

11.

$tg^3x - tgx = 0$ $\quad -\frac{\pi}{3} \le x \le \frac{\pi}{3}$ $\quad$ שייכת

$tgx(tg^2x - 1) = 0$

$tgx = 0$ $\quad tg^2x = 1$

$x_1 = \pi k$ $\quad tgx = \pm 1$

$x_2 = \frac{\pi}{4} + \pi k$

$x_3 = -\frac{\pi}{4} + \pi k$

k	$x = \pi k$
-1	$-\pi$ X
0	0 V
1	π X

k	$x = \frac{\pi}{4} + \pi k$
-1	$-$ X
0	$\frac{\pi}{4}$ V
1	$1\frac{\pi}{4}$ X

0 $\quad \frac{\pi}{4}$

ש"ב, שוויון

ב. $0 \le x < \pi$

ג. $\cos x - 2\sin^2 x \cos x = 0$

$\cos x \left(1 - 2\sin^2 x\right) = 0$

$\cos x = 0$ $\quad$ $1 - 2\sin^2 x = 0$

$\sin^2 x = \frac{1}{2}$

$\sin x = \pm\frac{1}{\sqrt{2}}$

$\sin x = \pm\frac{\sqrt{2}}{2}$

$x_1 = \frac{\pi}{4} + 2\pi k$

~~$x_2 = -\frac{\pi}{4} + 2\pi k$~~

כפל בצמוד משלים באיבר

$x_1 = \frac{\pi}{4} + \pi k$

k	$x = \frac{\pi}{4} + \pi k$
-1	X
0	$\frac{\pi}{4}$ ✓
1	X

$x = \frac{\pi}{4}$

k	$x = \frac{\pi}{2} + \pi k$
-1	X
0	$\frac{\pi}{2}$ ✓
1	X

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

13. $1-3\sin 2x+\cos 4x=0 \qquad -\pi \le x \le \pi$

$\cos 2\alpha = \cos^2\alpha - \sin^2\alpha$

$\sin^2\alpha + \cos^2\alpha = 1$

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

$1-3\sin 2x+1-\sin^2 2x-\sin^2 2x=0$

$-2\sin^2 2x-3\sin 2x+2=0$

$-2t^2-3t+2=0 \qquad t=\sin 2x$

פתרון משוואה ריבועית

$\sin 2x=\frac{1}{2} \qquad \sin 2x=-2 \notin [-1,1]$

$\sin 2x=\sin 30$ — אין פתרון כי $-1 \le \sin x \le 1$

$2x=\frac{\pi}{6}+2\pi k \qquad 2x=\frac{5\pi}{6}+2\pi k$

$x=\frac{\pi}{12}+\pi k \qquad x=\frac{5\pi}{12}+\pi k$

ב. $-\pi \le x \le \pi$

k	x
-1	$-\frac{11}{12}\pi$ ✓
0	$\frac{\pi}{12}$ ✓
1	$1\frac{\pi}{12}$ ✗
-2	✗

k	x
-1	$-\frac{7}{12}\pi$ ✓
0	$\frac{5\pi}{12}$ ✓
1	$1\frac{5}{12}\pi$ ✗
-2	✗