

The Secret of Solving Brutal Trigonometric Equations in Pre Calculus Honors 7 5

Lesson 228 | Precalculus | Trigonometric equations

<https://www.youtube.com/watch?v=G-zOuKxwKZo>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Solve $8\sin(4x)-4=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

02

Solve $3\sin(7x)-3/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

03

Solve $9\sin(6x)-9/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

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04

Solve $2\sin(7x)-1=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

05

Solve $11\sin(2x)-11/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

06

Solve $9\sin(2x)-9/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

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01

Solve $8\sin(4x)-4=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

$\sin(4x)=1/2$. Thus $x=(\pi/6+2k\pi)/4$ or $x=(5\pi/6+2k\pi)/4$, $k=0,1,\dots,3$. There are 8 roots in the interval.

02

Solve $3\sin(7x)-3/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

$\sin(7x)=1/2$. Thus $x=(\pi/6+2k\pi)/7$ or $x=(5\pi/6+2k\pi)/7$, $k=0,1,\dots,6$. There are 14 roots in the interval.

03

Solve $9\sin(6x)-9/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

$\sin(6x)=1/2$. Thus $x=(\pi/6+2k\pi)/6$ or $x=(5\pi/6+2k\pi)/6$, $k=0,1,\dots,5$. There are 12 roots in the interval.

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04

Solve $2\sin(7x)-1=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

$\sin(7x)=1/2$. Thus $x=(\pi/6+2k\pi)/7$ or $x=(5\pi/6+2k\pi)/7$, $k=0,1,\dots,6$. There are 14 roots in the interval.

05

Solve $11\sin(2x)-11/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

$\sin(2x)=1/2$. Thus $x=(\pi/6+2k\pi)/2$ or $x=(5\pi/6+2k\pi)/2$, $k=0,1,\dots,1$. There are 4 roots in the interval.

06

Solve $9\sin(2x)-9/2=0$ for $0\leq x<2\pi$. Give an exact formula listing all roots.

$\sin(2x)=1/2$. Thus $x=(\pi/6+2k\pi)/2$ or $x=(5\pi/6+2k\pi)/2$, $k=0,1,\dots,1$. There are 4 roots in the interval.