

Watch. Practice. Understand. | Lesson 228

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

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

Practice focus: Trigonometric equations

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Solve $2\cos x - 1 = 0$ on $0 \leq x < 2\pi$.

02 Solve $2\sin^2 x - \sin x = 0$ on $0 \leq x < 2\pi$.

03 Solve $\tan x = -1$ for all real x .

04 Solve $\cos 2x = \cos x$ on $0 \leq x < 2\pi$.

Worked answers | Lesson 228

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Practice focus: Trigonometric equations

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01 Solve $2\cos x - 1 = 0$ on $0 \leq x < 2\pi$.

$\cos x = 1/2$, so $x = \pi/3$ or $5\pi/3$.

02 Solve $2\sin^2 x - \sin x = 0$ on $0 \leq x < 2\pi$.

$\sin x(2\sin x - 1) = 0$. Solutions: $0, \pi, \pi/6, 5\pi/6$.

03 Solve $\tan x = -1$ for all real x .

Tangent has period π : $x = -\pi/4 + k\pi$ for any integer k .

04 Solve $\cos 2x = \cos x$ on $0 \leq x < 2\pi$.

$2\cos^2 x - 1 = \cos x$ gives $(2\cos x + 1)(\cos x - 1) = 0$. Solutions: $0, 2\pi/3, 4\pi/3$.