

Watch. Practice. Understand. | Lesson 229

The In Depth Analysis of Double Angles Identities Pre Calculus Honors 7 3 Part 1

Watch the matching video: <https://www.youtube.com/watch?v=fsx4aszCG3E>

Practice focus: Double-angle identities

Original extra practice matched to the listed lesson topic.

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

01 If $\sin x = 3/5$ and x is in quadrant I, find $\sin 2x$.

02 For the same x , find $\cos 2x$.

03 Express $\sin^2 x$ using $\cos 2x$.

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

Worked answers | Lesson 229

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01 If $\sin x = 3/5$ and x is in quadrant I, find $\sin 2x$.

$$\cos x = 4/5, \text{ so } \sin 2x = 2\sin x \cos x = 24/25.$$

02 For the same x , find $\cos 2x$.

$$\cos^2 x - \sin^2 x = 16/25 - 9/25 = 7/25.$$

03 Express $\sin^2 x$ using $\cos 2x$.

$$\text{From } \cos 2x = 1 - 2\sin^2 x, \text{ obtain } \sin^2 x = (1 - \cos 2x)/2.$$

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

$$2x = k\pi \text{ gives } x = 0, \pi/2, \pi, 3\pi/2 \text{ in the required interval.}$$