

Watch. Practice. Understand. | Lesson 188

Pre Calculus 7 3 Part III Product to Sum

Watch the matching video: <https://www.youtube.com/watch?v=SBDtoa8Gycg>

Practice focus: Product-to-sum and sum-to-product

Original extra practice matched to the listed lesson topic.

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

01 Rewrite $\sin 3x \cos x$ as a sum.

02 Rewrite $\cos 5x \cos 2x$ as a sum.

03 Rewrite $\sin 5x + \sin x$ as a product.

04 Rewrite $\cos 4x - \cos 2x$ as a product.

Worked answers | Lesson 188

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Practice focus: Product-to-sum and sum-to-product

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01 Rewrite $\sin 3x \cos x$ as a sum.

$$\sin A \cos B = [\sin(A+B) + \sin(A-B)]/2, \text{ so } [\sin 4x + \sin 2x]/2.$$

02 Rewrite $\cos 5x \cos 2x$ as a sum.

$$\cos A \cos B = [\cos(A+B) + \cos(A-B)]/2, \text{ so } [\cos 7x + \cos 3x]/2.$$

03 Rewrite $\sin 5x + \sin x$ as a product.

$$2\sin((5x+x)/2)\cos((5x-x)/2) = 2\sin 3x \cos 2x.$$

04 Rewrite $\cos 4x - \cos 2x$ as a product.

$$-2\sin((4x+2x)/2)\sin((4x-2x)/2) = -2\sin 3x \sin x.$$