Category: Education Category: Books Category: Music Category: Pianoforte Category: Pianists Category: PedagogyQ: Is $\lim_{x \to \infty}(1 - \cos x)^{1/x} = 1$? I'm looking for the following limit: $$\lim_{x \to \infty}(1 - \cos x)^{1/x} = 1.$$ It's from the book Analysis I. I came up with this by first assuming it was right and then applying L'Hospital's rule: $$\lim_{x \to \infty}(1 - \cos x)^{1/x} = \lim_{x \to \infty}(\frac{(\cos x)^{-1}}{\sin x}) = \lim_{x \to \infty}(\frac{(\cos x)^{-1}}{\cos x}) = \lim_{x \to \infty}(\frac{1}{-\sin x}) = \lim_{x \to \infty}(1) = 1$$ Can I do it like this? A: Recall that $$1-\cos x=2\sin^2\frac{x}{2}$$ so that $$(1-\cos x)^{1/x}=2^{1/x}\sin\frac{x}{2}$$ Take limits inside $\sin$ (or $\sin^2$ for that matter). A: You can prove it directly by using the continuit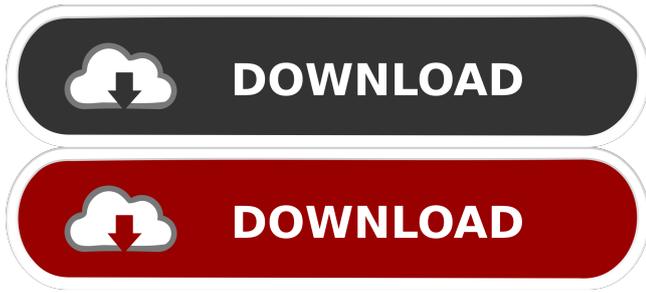y of $\cos$ and $\sin$ around the origin. $$\lim_{x\to\infty}\left(1-\cos x\right)^{\frac{1}{x}}=\lim_{x\to\infty}\left(\frac{1-\cos(x)}{1+\cos(x)}\right)^{\frac{1}{x}}=\lim_{x\to\infty}\left(\frac{1-\cos(x)}{2}\right)^{\frac{1}{x}}=\lim_{x\to\infty}\left(\frac{2\sin^2\frac{x}{2}}{2}\right)^{\frac{1}{$$

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Category:Music education Category:Educational psychology Category:Piano Category:Musical education Category:Music psychology Category:Cognitive musicology Category:Music education organizations Category:Educational charities based in the United States Category:Music organizations based in the United StatesTuesday, November 15, 2011 SNURF SOFT SNACK GUIDE Snacks, in particular the morning ones, are an important part of a healthful lifestyle. A healthy, well-balanced breakfast can make a big difference to your day. Whole grains, fruits, and beans are key players. But if you need to go the snack route to tide you over for a bit, how can you really be smart about it? Here are some tips to keep in mind for a sensible, nutritionally sound snack. Keep a variety of whole grain foods in your refrigerator and pantry. On the health and taste front, nuts are a smart choice. Buy raw nuts, roast or bake them yourself, and shake on a little olive oil, maybe even some dried oregano. Top with a bit of lemon juice. Choose whole grain crackers, bagels or biscuits that are low in sodium. Put a bowl of grapes in the microwave and blast them until they're warm and sweet, then add a squirt of lemon juice. Have a soft, nutritious, sugar-free treat. Yogurt with a sprinkle of granola or a bowl of hot cereal (get fresh cooked oats in your refrigerator and you can make this one up on the spot) with a bit of soy milk and a dash of cinnamon is filling, and nutritious. Beans make an excellent snack when combined with whole wheat bread. Add a bit of cumin, cayenne or other seasonings to the beans, then pop them in a toaster or oven on warm. Pack a small container of hummus with carrots or celery sticks. You won't even need a bowl. Snacks are for everybody. When you have healthy alternatives ready to go, it's easy to make the switch. Try out these suggestions, and you'll be on your way to a healthy lifestyle, no matter what the occasion.Physician-centric insurance: access to care and supply-side solutions. To improve access to care, some health plans are moving toward "physician-centric" insurance. This type of plan pools the medical risk of a 2d92ce491b