

[2.13] Try *comDenom()* to find limits

(Note: AMS 2.05 fixes the specific example in this tip, but the general idea may still be useful for other limits. Thanks to John Gilbertson for pointing this out.)

Sometimes the 89/92+ CAS cannot find a limit to an expression, because of the way the expression is structured. And, sometimes, *comDenom()* can restructure the expression so that the CAS can find the limit. For example, the CAS cannot find the limit as x approaches 0 for this expression:

$$\frac{\frac{1}{\sqrt{1+x}} - 1}{x}$$

However, `comDenom((1/(sqrt(1+x))-1)/x)`

returns $\frac{1-\sqrt{x+1}}{x\sqrt{x+1}}$

and the *limit()* function can find the limit of this expression, like this:

$$\text{limit}((1-\sqrt{x+1})/(x*\sqrt{x+1}),x,0) = -1/2$$

(Credit to Olivier Miclo)