

Re: Sin Cos Tan, why not Sin Sec Tan?

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in article <nomjc.1663\$K53.873@news-server.bigpond.net.au>,
cassandra thompson <cass.harley@bigpond.com> wrote:

| I am learning trigonometry in preparation for actually teaching it.
| I am enjoying it, and would like to think I am getting a good
| understanding, however I am unsure about the following.

| When talking about highschool level trigonometry we often use
| 'SOHCAHTOA' as a way to remember that:

| Sin@ = O/H

| Cos@ = A/H

| Tan@ = O/A

| Further on we learn that 3 other functions exist that are the inversion
| of the first three

| CSC@ = H/O

| SEC@ = H/A

| COT@ = A/O

| So that Sin@ = 1/CSC@

| Cos@ = 1/SEC@

| Tan@ = 1/COT@

| My question is why is the cofunction of Sin, ie Cosine placed in the
| first three that are learnt. Wouldn't it make more sense to group them as

| Sin@ = O/H

| Sec@ = H/A

| Tan@ = O/A

| Then introduce the cofunctions

| Cos@ = A/H

| CSC@ = H/O

| Cot@ = A/O

| This seems a lot more clear to me. Is there some mathematical reason that

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[I am missing?

the name "trigonometry" suggests that the subject is all about triangles, but that's very misleading; what trigonometry secretly really is is the study of the points on the unit circle. (the right triangles that show up are just auxiliary devices used to highlight the points on the unit circle.) from this point of view it's pretty clear why cosine and sine are the crucial variables; they're the x and y coordinates of the point on the unit circle.

so in fact besides not bothering with secant and cosecant and cotangent, it's probably better not to bother with tangent either. and cosine should generally come before sine, of course, since x comes before y after all.

of course this tends to reduce trigonometry to about a five-minute lesson, but that's probably about what it's worth.

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