## Problem 1

Quick! Without looking at any of your notes, complete these properties:

$$
\begin{aligned}
& \frac{1}{\tan x}= \\
& \frac{1}{\sin x}= \\
& \frac{1}{\cos x}=
\end{aligned}
$$

Okay, look back at your notes, ask a friend, or check the Interwebz... However you want, confirm your answers above. (And fix, if necessary.)

## Problem 2

Quick! Complete what's missing:

$$
\begin{aligned}
& (\quad)(\csc x)=1 \\
& (\cot x)(\quad)=1
\end{aligned}
$$

$$
(\quad)(\sec x)=1
$$

Unsure about one of your answers? You can check with a table in Desmos. Correct? It'll look like this:

| $x_{1}$ | $0\left(\csc x_{1}\right)$ |
| :---: | :---: |
| 1 | 1 |
| 2 | 1 |
| 3 | 1 |
| 4 | 1 |
| 5 | 1 |

Incorrect? It'll look something like this:

| $x_{1}$ | $\ddots(\square)\left(\csc x_{1}\right)$ |
| :---: | :---: |
| 1 | 0.64209262 |
| 2 | -0.45765755 |
| 3 | -7.0152526 |
| 4 | 0.86369115 |
| 5 | -0.29581292 |

## Problem 3

A few more properties for review... Write these in terms of sine and cosine:

$$
\tan x=
$$

$\cot x=$

## Problem 4

Last round. Fill in what's missing:

$$
\cos ^{2} x+\sin ^{2} x=(\quad)
$$

$$
\begin{aligned}
& 1+(\quad)=\sec ^{2} x \\
& \cot ^{2} x+1=(\quad)
\end{aligned}
$$

## Problem 5

Here's a new style of identity:

$$
(\cos \phi-\sin \phi)^{2}=1-2 \cos \phi \sin \phi
$$

Which side would you start with? Why? Write something down. Then discuss your reasoning with a partner.

