1. Suppose $M = \begin{bmatrix} 5 & 3 & 1 \\ 20 & 10 & b \end{bmatrix}$, $N = \begin{bmatrix} c & s & 2 \\ c & t & 5 \\ c & 3 & 3 \end{bmatrix}$ and $MN = \begin{bmatrix} 36 & 36 & a \\ z & 280 & 240 \end{bmatrix}$.

Find the values of all those unknowns. Hint: it will be easy if you find them in more-or-less alphabetical order. There are many equations you can write down, but aim for those with as few unknowns as possible.

Answers: $a =$ $\square$ $b =$ $\square$ $c =$ $\square$

$s =$ $\square$ $t =$ $\square$ $z =$ $\square$

BONUS: How many pairs of numbers have to multiplied to find the product of a 3×7 by a 7×10 matrix? Explain. (No credit for a guess).