1. Algebra. In the following system of equations, $x$, $y$, and $z$ are unknown variables, whereas $a$, $b$, $c$, and $\theta$ are given constants.

\[
\begin{align*}
    x - by - z \cos \theta &= 0 \\
    y - z \sin \theta &= c \\
    ax - z \cos \theta &= 0
\end{align*}
\]

Solve for $x$ in terms of $a$, $b$, $c$, and $\theta$.

Answer: $x = \ldots$

2. Geometry and Trig. In the following figure, Lines $AB$ and $CD$ are perpendicular. Lines $CD$ and $GH$ are parallel. Lines $OG$ and $EF$ are also parallel. The angle between lines $ED$ and $EF$ is $\theta$. If the length of line $OG$ is given to be $L$, what is the length of line $GH$ in terms of $L$ and $\theta$?

![Diagram](image)

Answer: $|GH| = \ldots$

3. More algebra and Trig. You are given the equations:

\[
\begin{align*}
    x + y &= q \sin \theta \\
    z &= r \cos \theta
\end{align*}
\]

Eliminate $\theta$ and solve for $q$ in terms of $x$, $y$, $z$, and $r$.

Answer: $q = \ldots$