Problem 1. ( $2+3$ points) Simplify the following expressions.
(a) $2^{\sqrt{5}} \cdot 3^{\sqrt{5}}=$ $\square$
(b) $e^{\ln (6 x)-\ln (2 y)}=$ $\square$

## (scratch space)

Problem 2. ( $3+2$ points)
[For the second part, you need to give an exact answer in radians.]
(a) (Roughly) sketch $f(x)=\sin (x)$ in the coordinate system below.
(b) $\sin ^{-1}\left(-\frac{1}{2}\right)=\square$. Mark the corresponding point in your earlier sketch.


