Trigonometry Worksheet: Trigonometric Equations (3)

Solve the trigonometric equation given by

$$\tan x \sin^2 x = 2 \tan x$$

$\Rightarrow \quad \tan x \left(\sin^2 x - 2 \right) = 0$

set each factor to zero and solve

$\tan x = 0 \quad$ and $\quad \sin^2 (x) = 2$

a) on the interval $[0, \pi)$, $\tan x = 0$ for $x = 0$.
and since the period of $\tan x$ is π,
the solutions are written as : $x = 0 + k\pi$
$\underline{x = k\pi}$

b) $\quad \sin^2 (x) = 2$

$\Rightarrow \sin (x) = \pm\sqrt{2}$

this equation has no solutions
since $-1 \leq \sin(x) \leq 1$.