1. Find all discontinuous points of the following function and determine removable or non removable type of each of them.

$$
f(x)=\left\{\begin{array}{lll}
\sqrt{1-x} & \text { if } & x<0  \tag{1}\\
-2+|x| & \text { if } & 0 \leq x<1 \\
\frac{x^{2}-4 x}{x-4} & \text { if } & x \geq 1
\end{array}\right.
$$

2. Find the limit.

$$
\begin{equation*}
\lim _{x \rightarrow 0} \sqrt{x} \sin \left(\frac{1}{x}\right) \tag{2}
\end{equation*}
$$

hint: Please note that the for any angle $\theta$ we have $-1 \leq \sin (\theta) \leq 1$. Use squeeze theorem and find the answer.
3. Find all vertical and horizontal asymptotes of the following function.

$$
\begin{equation*}
f(x)=\frac{4 x^{2}+7 x-1}{x^{2}-6 x-16} \tag{3}
\end{equation*}
$$

