**1.** (1) $f(0) = -1, f(1) = 1, f(2) = 4$

**2.** $(a)$ $(-\infty, -4) \cup (-4, 4) \cup (4, \infty)$
$(b)$ $[0, 1]$, as we need both $x \geq 0$ and $1 - \sqrt{x} \geq 0$.

**3.** $f$ is even, since $f(-x) = f(x)$ by direct verification.

**4.** $y = -2x + 6$.