(a)

$$\begin{aligned}
\mathbf{P}(X \le 1.5) &= \Phi(1.5) \\
&\approx 0.9332.
\end{aligned}$$

$$\begin{aligned}
\mathbf{P}(X \le -1) &= 1 - \mathbf{P}(X \le 1) \\
&= 1 - \Phi(1) \\
&\approx 1 - 0.8413 \\
&= 0.1587.
\end{aligned}$$

(b)

$$\begin{aligned}
\mathbf{E}\left[\frac{Y-1}{2}\right] &= \frac{1}{2}(\mathbf{E}[Y] - 1) \\
&= 0.
\end{aligned}$$

$$\begin{aligned}
\operatorname{var}\left(\frac{Y-1}{2}\right) &= \operatorname{var}\left(\frac{Y}{2}\right) \\
&= \frac{1}{4}\operatorname{var} Y \\
&= 1.
\end{aligned}$$

Thus, the distribution of $\frac{Y-1}{2}$ is $\mathcal{N}(0,1)$.

(c)

$$\begin{aligned}
\mathbf{P}(-1 \le Y \le 1) &= \mathbf{P}\left(\frac{-1-1}{2} \le \frac{Y-1}{2} \le \frac{1-1}{2}\right) \\
&= \Phi(0) - \Phi(-1) \\
&= \Phi(0) - (1 - \Phi(1)) \\
&\approx 0.3413.
\end{aligned}$$