Predict the major products of the following reaction.

$$A) \hspace{1cm} \nearrow \hspace{1cm} \text{OH} \hspace{1cm} + \hspace{1cm} \hspace{1cm} \text{Br} \hspace{1cm} \nearrow$$

$$B) \qquad \text{Br} \qquad \text{+} \quad \text{HO} \\$$

$$C)$$
  $\rightarrow$   $Br$   $+$   $Br$ 

$$D) \hspace{1cm} \nearrow \hspace{1cm} \text{OH} \hspace{1cm} + \hspace{1cm} \text{HO} \hspace{1cm} \nearrow$$