

**function** ELIMINATION-ASK( $X, \mathbf{e}, bn$ ) **returns** a distribution over  $X$

**inputs:**  $X$ , the query variable

$\mathbf{e}$ , observed values for variables  $\mathbf{E}$

$bn$ , a Bayesian network with variables  $vars$

$factors \leftarrow []$

**for each**  $V$  **in** ORDER( $vars$ ) **do**

$factors \leftarrow [\text{MAKE-FACTOR}(V, \mathbf{e})] + factors$

**if**  $V$  is a hidden variable **then**  $factors \leftarrow \text{SUM-OUT}(V, factors)$

**return** NORMALIZE(POINTWISE-PRODUCT( $factors$ ))