1. $P(\text{pos} \mid \text{has virus}) = 0.998$

$P(\text{neg} \mid \text{no virus}) = 0.999$

$P(\text{has hiv}) = \frac{1}{10000}$

$$P(\text{pos}) = P(\text{pos} \mid \text{has virus})\, P(\text{has virus}) + (1 - P(\text{neg} \mid \text{no virus}))\, P(\text{no virus})$$
$$= 0.998 \cdot \frac{1}{10000} + (1 - 0.999)(1 - \frac{1}{10000})$$
$$= 0.00019979$$

$$P(\text{has virus} \mid \text{pos}) = \frac{P(\text{pos} \mid \text{has virus})\, P(\text{has virus})}{P(\text{pos})}$$
$$= \frac{0.998 \cdot \frac{1}{10000}}{0.00019979}$$
$$= 0.4995 = 49.95\%$$